MANAGERIAL ACCOUNTING

VOLUME I

JAMES O. McKINSEY

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MATERIALS FOR THE STUDY OF BUSINESS

MANAGERIAL ACCOUNTING

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VOLUME I

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EDITOR'S PREFACE

Collegiate training for business administration is now so widely attempted that the time has arrived when experiments should be conducted looking toward the organization of the business curriculum into a coherent whole. Training in scattered "business subjects" was defensible enough in the earlier days of collegiate business training, but such a method cannot be permanent. It must yield to a more comprehensive organization.

There can be no doubt that many experiments will be conducted looking toward this goal; they are, indeed, already under way. This series, "Materials for the Study of Business," marks one stage in such an experiment in the School of Commerce and Administration of the University of Chicago.

It is appropriate that the hypotheses on which this experiment is being conducted be set forth. In general terms the reasoning back of the experiment runs as follows: The business executive administers his business under conditions imposed by his environment, both physical and social. The student should accordingly have an understanding of the physical environment. This justifies attention to the earth sciences. He should also have an understanding of the social environment and must accordingly give attention to civics, law, economics, social psychology, and other branches of the social sciences. His knowledge of environment should not be too abstract in character. It should be given practical content, and should be closely related to his knowledge of the internal problems of management. This may be accomplished through a range of courses dealing with business administration wherein the student may become acquainted with such matters as the measuring aids of control, the communicating aids of control, organization policies and methods; the manager's relation to production, to labor, to finance, to technology, to risk-bearing, to the market, to social control, etc. Business is, after all, a pecuniarily organized scheme of gratifying human wants, and properly understood, falls little short of being as broad, as inclusive, as life

BASIC ELEMENTS OF THE BUSINESS CURRICULUM

CONTROL

1. Communicating aids of control, for example
   - a) English
   - b) Foreign language
2. Measuring aids of control, for example
   - a) Mathematics
   - b) Statistics and accounting
3. Standards and practices of control
   - a) Psychology
   - b) Organization policies and methods

Of problems of adjustment to physical environment
- a) The earth sciences
- b) The manager's relationship to these

Of problems of technology
- a) Physics through mechanics, basic, and other sciences as appropriate
- b) The manager's administration of production

Of problems of finance
- a) The financial organization of society
- b) The manager's administration of finance

Of problems connected with the market
- a) Market functions and market structure
- b) The manager's administration of marketing (including purchasing and traffic)

Of problems of risk and risk-bearing
- a) The risk aspects of modern industrial society
- b) The manager's administration of risk-bearing

Of problems of personnel
- a) The position of the worker in modern industrial society
- b) The manager's administration of personnel

Of problems of adjustment to social environment
- a) The historical background
- b) The socio-economic institutional life
- c) Business law and government

itself in its motives, aspirations, and social obligations. It falls little short of being as broad as all science in its technique. Training for the task of the business administrator must have breadth and depth comparable with those of the task.

Stating the matter in another way, the modern business administrator is essentially a solver of business problems—problems of business policy, of organization, and of operation. These problems, great in number and broad in scope, divide themselves into certain type groups, and in each type group there are certain classes of obstacles to be overcome, as well as certain aids, or materials of solution.

If these problems are arranged (1) to show the significance of the organizing and administrative, or control, activities of the modern responsible manager, and (2) to indicate appropriate fields of training, the diagram on the opposite page (which disregards much overlapping and interacting) results. It sets forth the present hypothesis of the School of Commerce and Administration concerning the basic elements of the business curriculum, covering both secondary school and collegiate work.

These present volumes on managerial accounting deal with the manager's use of standards, records, and reports in his control of business activities.

L. C. MARSHALL

AUTHOR'S PREFACE

Instructors differ to a considerable degree in their opinions concerning the proper organization and content of college courses in accounting. Much progress has been made in the development of such courses during recent years and several interesting experiments are now under way. It is too early to predict what the result of these experiments will be, but it is safe to assume that instructors will continue to differ in their opinions and will continue to seek the desired goal in different ways. In fact, it is much to be desired that this be true, for it is only by this means that progress will be made.

This volume is the result of an experiment conducted by the author and his colleagues at the University of Chicago during the past five years. This experiment was based on the following assumptions: (1) that all students in a college of business administration should have a basic training in accounting as a part of a well-balanced business course; (2) that the primary purpose of such a training is to teach the student how accounting can be used in the solution of business problems: (3) that this purpose can be accomplished most effectively by giving the student (*a*) an appreciation of the business problems which are customary to the typical business unit; (*b*) a working knowledge of accounting technique; and (*c*) a thorough training in the use of accounting and statistical data in planning and controlling business operations. The acceptance of these assumptions led to the development of the following sequence of courses running through the first and second years of the four-year college course: (1) Organization of Industry; (2) Elements of Economics; (3) Elements of Business Administration; (4) Introduction to Accounting; and (5 and 6) Managerial Accounting.

In organizing material for the course in Managerial Accounting the following procedure was used: (1) The activities over which the chief executive of a typical business may exercise jurisdiction were classified into homogeneous groups; (2) a classification was made of the major problems in the administration of each group of activities; (3) the accounting and statistical data which were considered of most value in the solution of these problems were presented. This method of approach resulted in a two-quarter course organized under the following main headings:[1]

I. The Need and Nature of Standards and Records
II. The Organization for Standards and Records Control
III. Administrative Reports
IV. Sales Control
V. Purchasing Control
VI. Traffic Control
VII. Production Control
VIII. Personnel Control
IX. Plant and Equipment Control
X. Branch-House Control
XI. Investment Control
XII. Control of Liabilities
XIII. Expense Control
XIV. Financial Control
XV. The Financial and Operating Program
XVI. Proprietorship Control
XVII. Profits Control and Distribution

The first seven of these topics are discussed in the present volume. The remaining topics will be discussed in a second volume which will appear within the next year. The complete outline is presented here so the reader may get a bird's-eye view of the course as a whole. The author has found it advisable to go over this outline with students on the first day of the course so they will obtain a proper perspective.

[1] No attempt is made in this text to distinguish arbitrarily between accounting and statistical data. A considerable part of the information used in controlling departmental activities does not come from double-entry records.

The author believes that this method of approach to the study of accounting is equally desirable for the prospective business executive and the prospective professional or private accountant. If the accountant is to be of most service to the business executive, he must understand the latter's point of view and be able to present data of such nature and in such form that the executive can use it in the solution of his daily problems. Unfortunately the accountant and the business executive often do not appreciate each other's point of view or understand each other's problems. It is hoped that courses of this type will help to eliminate this difficulty. The prospective accountant should have in addition to the courses previously mentioned such courses as the following: Commercial Cost Accounting, Industrial Cost Accounting, Construction and Administration of Accounting Systems, Accounting Theory, Public Accounting Practice and Procedure, and Accounting Problems. He may also take special courses such as Public Utility Accounting and Governmental Accounting.

Questions and problems are given at the end of each chapter which are intended to test the students' ability to apply the principles discussed in the text material. In some cases these questions and exercises are made quite difficult so they will serve as a real challenge to the students' thinking. Many students will be unable to prepare a complete answer to some of the problems. The instructor should discuss these with the class after the original solutions have been submitted and should lead the students to work out satisfactory results. This affords an opportunity for some real and constructive teaching. With few exceptions the questions cannot be answered by memorizing the text material. They constantly require the thinking through of new problems and the application of the information obtained from the text material to new situations. If these questions are used in connection with the problems as a basis of the class discussion they provide some interesting and useful teaching material.

In a few cases the text discussion does not agree with orthodox accounting practice. For example, the classification of income and expense items and the treatment of interest is not in harmony with the current practice of the majority of professional accountants. In all such cases the orthodox method is presented and the student is told that it is the current practice Care has been taken to make deviations from current practice only when such deviations are thought very necessary. The discussion is such in each case that the instructor can take whatever attitude he desires.

A business of sufficient size to have a well-defined organization is assumed in much of the text discussion. Administrative problems can be seen more clearly in such a business and their solution can be discussed with more certainty. The organization and methods of small firms vary more than those of large firms. The general principles outlined in this text are as applicable to the small firm, however, as they are to the large company.

The author has received many helpful suggestions from past and present colleagues who have taught the material while it was in the process of development. In this connection he is indebted to A. C. Hodge; H. C. Daines; J. L. Palmer, C.P.A.; T. O. Yntema, C.P.A.; A. J. Lynn, C.P.A.; and R. E. Taylor. Professor L. C. Marshall has given much help in the organization of the material. The author is especially indebted to his partner, George E. Frazer, C.P.A. Both the point of view and the contents of this volume have been influenced by association with him in university work and in professional practice.

The author regards this text as but a humble beginning in the development of accounting literature from the managerial point of view. He prophesies that much fruitful work will be done in this field in the immediate future. He will appreciate suggestions and criticisms which will assist in the improvement of future editions of this text.

James O. McKinsey

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PART I

THE NEED AND NATURE OF STANDARDS AND RECORDS

CHAPTER I

THE RELATION OF STANDARDS AND RECORDS TO BUSINESS ADMINISTRATION

Analysis of the Administrative Problem

Business administration, under modern conditions, is a problem of such complexity that it can be studied effectively only when it is analyzed into its elements. Many attempts have been made to provide such an analysis. The results vary according to the knowledge, experience, and point of view of the one making the analysis. A useful analysis, from the point of view of this text, defines business administration to include three things: (1) the establishment of *policies*, (2) the planning and setting up of an *organization* for carrying out these policies, and (3) the *operating* or *running* of the organization.[1] Later discussion will show that running the organization involves primarily the establishment and enforcement of *operating procedures*. From this point of view, therefore, a study of business administration results in a study of policies, organization, and procedures.

This classification is both a useful and basic one, but it is not sufficient for a detailed study of administrative activities. There are various kinds of policies and various forms of procedures. Consequently it is desirable to have a classification of policies and procedures which can be used as a basis for their study. In fact, such a classification is necessary for setting up an organization, for an organization results from a classification of administrative activities (dealing with policies and procedures and the fixing of responsibility for the performance of each class. With this point of view in mind, this chapter is given to a brief consideration of organization, for the purpose of showing by

[1] L. C. Marshall, *Business Administration*, p. 2.

this means the relation of the special group of activities in which we are primarily interested (that dealing with standards and records) to the general problem of administration.

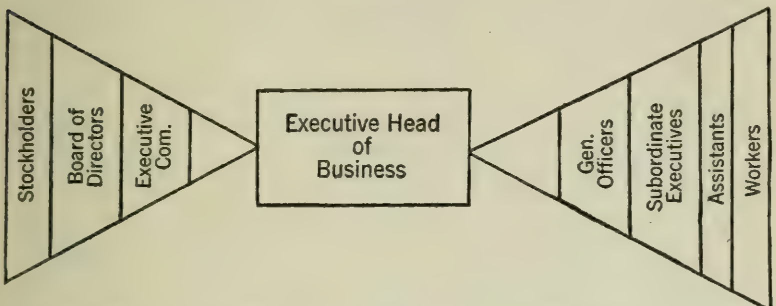
Legal and Administrative Organization

The organization of the business unit may be considered from two points of view, the legal and the administrative. The more customary legal forms of the business unit are the sole proprietorship, the partnership, and the corporation. Each of these forms has certain advantages and disadvantages, the importance of which varies from case to case, but we are not concerned with these at this time. Our primary interest is in the administrative organization of the business unit, that is, the organization established by the business for the administration of policies and procedures. We are interested in the legal form of organization only in so far as it affects the administrative organization. The extent to which it does this will be considered as the discussion of the administrative organization proceeds.

Outline of Administrative Form of Organization

The final administrative authority rests with the owners in all forms of the business unit. In the sole proprietorship and the partnership, the owners usually are actively engaged in administrative work. In the modern corporate enterprise the stockholders, who from the administrative point of view are the owners of the business, exercise their control mainly in an indirect manner. They delegate most of their authority to the board of directors composed usually of from three to twenty-one of the stockholders. The board of directors frequently appoints an executive committee of from three to five members. It is authorized to act for the board during the intervals between board meetings. The board of directors delegates a large part of its authority to the officers and executives of the corporation. The directors may select all the officers or they may select the chief executive and authorize him to appoint the other officers.[1] In most cases they select the officers and executives on the recommendation of the president. The officers and principal executives in turn transfer much of their authority to subordinate or junior executives. These subordinates employ assistants who are responsible for dealing with the "workers," performing manual and clerical tasks. Such a form of organization is shown graphically in Chart I.

CHART I



This diagram indicates that those responsible for the administration of a business can be divided roughly into two groups, the owners and their direct representatives on the one hand, and the executives and their assistants on the other. The chief executive, usually termed the president in the United States and frequently termed the managing director in England and some European countries, is the connecting link between the two groups. The distinction between these two groups can be most easily seen in the corporation where a formal type of organization is required, but it exists in all legal forms of the business unit. In the sole proprietorship and partnership this distinction is often obscured because the same individuals act in the capacity of both owners and executives and in many cases it is not clear in which capacity they are acting.

[1] In many corporations some of the major executives are not officers in the legal sense, but this distinction need not concern us here.

Relation of Owners to Executives

The owners of a business, when acting as such, should concern themselves only with questions of policy and should leave to the executives the carrying out of the policies adopted. Confusion of authority and inefficient administration are almost sure to result if this is not done. For example, in a corporation the stockholders and directors should pass upon the major policies of the business but should leave to the officers and executives the execution of policies. The only interest of the directors should be the fixing of responsibility for the execution of the policies they have adopted.

Boards of directors oftentimes concern themselves with administrative routine and give more or less specific instructions to the executives. This reduces the authority of the executives and is likely to deaden their initiative as well. On the other hand, some boards of directors delegate the task of policy formation to the executives and reserve to themselves only the right of approval. This practice tends to cause the board of directors to exercise only a nominal control. It is the legal idea that directors should exercise an active and continuous control over the policies of the corporation. Efficient administration is promoted by this plan. The directors will need the recommendations and advice of the executives in the formulation of policies but they should not make the executives the sole policy-making agency of the organization. The executives are usually granted the authority to pass upon minor policies subject to the later approval of the board of directors.

In some cases the chief executive assumes responsibility for policy-making. In more cases he assumes autocratic power in the execution of policies. As the connecting link between the board and the executives he must of necessity exercise influence on and assume responsibility for both the formulation and execution of policies. He should, however, usurp neither the authority of the directors in making policies nor the responsibility of the executives in executing them. Policies should be adopted as a result of the careful thought of a deliberative body. They should be executed by specialists in the various fields of administration. Neither the formation nor the execution of the policies of a business is a one man's job.

Classification of Executive Duties

The particular unit of an organization which exercises any specific authority may not be so important in all cases, but it is exceedingly important that definite responsibility be fixed and a workable organization be established. This is especially significant in fixing executive responsibility. Usually the chief executive should delegate authority to only a few men. They in turn should each delegate their powers to a few men in the third grade and these in turn should each delegate their powers to a few men in the fourth grade, etc. The extent to which the process of delegation should be carried depends on the size of the organization. One primary objective in all cases is to secure a definite line of authority and accountability. In some firms the chief executive assumes to deal directly with all classes of men. At one moment he will give instructions to a vice-president, at the next moment to a clerk, and at the next to a laborer in the shop. Other executives follow a similar practice. Such a procedure destroys administrative responsibility.

A delegation of executive duties is essential to the establishment of an organization. It is only by such delegation that a "one-man firm" develops into a "business organization." Classification of executive duties is a prerequisite to their effective delegation. Business firms classify executive duties in different ways. There has long been a tendency, however, to classify them in terms of processes. The reason for this is not hard to see. In the small firm the chief executive, who is usually the owner, performs or directly supervises all executive tasks. As the business grows and the executive tasks increase, he finds it necessary to delegate some of them. It is quite natural for him to delegate to an assistant all the executive duties involved in the performance of one complete process. For example, in a manufacturing business, the chief executive usually thinks of his business as involving two major processes—producing goods and selling goods. Usually the first two executives appointed in such a business are a works manager and a sales manager. Later a third executive may be placed in charge of financial operations and probably a fourth in charge of miscellaneous office procedure and routine which cannot be conveniently performed by the production, sales, and financial executives. Around each of these executives there develops a "department." We have, therefore, a production department, a sales department, a financial department, and an office department.

An executive typically regards all the activities involved in the attainment of any definite objective as one process. For example, in a manufacturing business one of the definite objectives of the business is to manufacture a product for sale. It is natural, therefore, for the chief executive of such a business to think of all the activities involved in the manufacture of a finished product as one process. In harmony with this point of view, he may delegate to the production manager not only the direction of the fabrication or processing of materials, but also control of purchasing of the materials and supplies required in production, the employment of the workers needed for carrying on the production operations, and even the keeping of the records needed for production control. In the same manner each other department assumes responsibility for procuring and using all the services and commodities which are necessary for the attainment of the primary object for which it is organized. Usually it is also responsible for the development and use of whatever "control devices" are used in the control of its activities. The outstanding exception to this general plan is that the capital needed by the production, sales, and office departments is not procured by them but is provided either by the chief executive or by the financial department.

The classification of executive duties in terms of processes results in placing under one executive tasks of widely diverging nature. This is contrary to the modern tendency toward specialization and tends to prevent the development of experts in administration. For example, a works manager who may be an expert on the processing of the product produced by his company may have little ability in purchasing or record-keeping. It cannot be expected that executives will have knowledge and ability in several fields. An attempt has been made, therefore, to break down administrative activities into more homogeneous groups than those resulting from a classification of activities in terms of processes. This has resulted in the development of what is termed a "functional" organization of administrative activities.

Development of Functional Organization

The development of a functional organization has been a gradual process. In most firms the process is not yet complete. This is due in part to the failure of firms to realize the desirability of such an organization and it is due, in part, to the fact that the volume of operations of many firms is so small that it is not economical to set up separate departments to administer each functional group of activities. Since a formal department is not set up the activities are not recognized as a separate function. The typical process by which functional organization developed has been as follows:

1. Financial administration was recognized as a function separate from the processes in which capital was used. As previously explained, this distinction was recognized even when business activities were organized primarily in terms of processes.

2. The departmental managers were relieved of the task of purchasing the materials and supplies required in carrying on

their operations and all purchasing activities were concentrated in a purchasing department. In manufacturing firms, the purchasing department was left as a subdivision of the production department in many cases, but this was due to the circumstances surrounding its development rather than to any logical reasons for such a procedure.

3. The purchasing of services was recognized to be, like the purchasing of commodities, a function which can be better administered by a centralized department than by the separate departments. At first an "employment" department was established, but this has gradually developed into a "personnel" department, responsible for the "procurement and maintenance of an efficient working force."

4. The construction and use of standards and records for control purposes were recognized as of sufficient importance to make it desirable to establish one or more departments for the performance of these tasks. This point of view has been the result of a growing conviction that the separate departments cannot wisely be left to develop such "control devices." Very early in the development of organization it was realized that there should be some centralization of records and this resulted in many cases in the establishment of an accounting department under the jurisdiction of the treasurer. In some cases this department was placed under the direct jurisdiction of the general manager. As previously stated, many firms recognized an office function which included such miscellaneous activities as handling incoming and outgoing mail, directing messenger service, supervising stenographic and typing service, etc. In some cases the office and accounting departments were combined under one head. Other firms established a statistical department responsible for collection of such data as were not provided by the formal accounting records. But even after these departments were established, the other departments maintained records for their use, they established in the main the procedures by which they

carried on their activities, and in so far as they used standards for control purposes developed these independently.

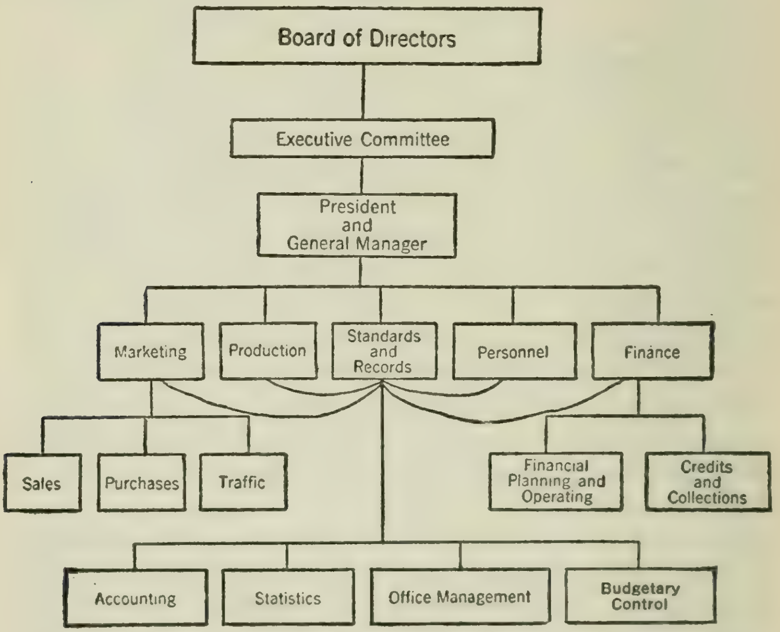
Large firms were the first to realize the undesirability of a decentralized control of standards and records and to seek an effective organization for their administration. A possible form of such an organization is discussed in chapters iii to vii inclusive. Smaller firms are just commencing to give serious thought to this problem. Consequently, in many cases, their administration of standards and records is ineffective. The thesis of the following pages is that standards and records are necessary for efficient administration and that their operation should be recognized as a distinct division of administrative activities. We are interested primarily in their construction and use but attention will be given also to fixing responsibility for their administration.

Several other departments than those discussed in the foregoing outline have been established by different firms in their attempt to secure the maximum results from a functional classification of activities. Some of the most significant of these departments are credit, collection, traffic, research, engineering, claims, and public relations. In fact the tendency to establish separate departments has been so strong during recent years that in many cases too many executives report to the chief executive. In a large firm it is not uncommon to find ten or twelve departmental managers reporting to the president or general manager. In such cases the chief executive is often so burdened with detail that he has little time for consideration of the major problems and policies of the organization. It is usually desirable to have not more than five or six executives reporting to the chief executive. Recently considerable thought has been given to the best method of combining departments so as to reduce the task of the chief executive and at the same time maintain a functional classification of executive duties. The centralization of standards and records under one executive is a step in this direction. The combination of sales and purchasing under a merchandise manager, which is a frequent practice in department stores, is another illustration of this tendency. It has also been suggested that sales, purchasing, and traffic might be combined in a manufacturing business under a vice-president in charge of marketing or an official with the authority this title implies. No doubt other combinations will be worked out as the theory and practice of business organization are developed.

Illustration of the Functional Organization of a Business

A possible organization of a manufacturing business is shown in Chart II.

CHART II



It will be noticed that activities are classified into homogeneous or functional groups and that these are combined in such a way as to reduce to five the number of executives reporting to the general manager. Although this organization is that of a manufacturing business, it is suitable for a mercantile business if the production department is omitted.

Chart II indicates only the general divisions of administrative duties which are common to most business firms. It is impossible to present a classification of administrative duties, or an organization chart of universal application. In a small business one executive may have jurisdiction over two or more functional divisions. In a large business other departments than those shown in the illustration may be established and a separate head appointed for each department. For example, in some firms there may be a legal department, in others an engineering department, in others a department of buildings and grounds, etc. These variations are not significant for our purposes.

The lines which connect the standards-and-records function with the other functional divisions are intended to show that the former permeates all the latter. Each department must make use of standards and records in the performance of its task. As previously indicated, the responsibility for the establishment and enforcement of standards and records varies from business to business. In many firms each department is left to work out and use the standards which it thinks are desirable for the control of its operations. The separate departments may also develop many of the records which they use. The development of cost records in the production department is a good example of this practice. The diagram given in Chart II is intended to emphasize that standards and records are a distinct function in business administration regardless of the method by which they are administered. The desirability of having a centralized department for their administration will be discussed subsequently.

Distinction between Line and Functional Control

The development of a functional organization makes necessary a distinction between line and functional control. In general, an executive has functional control of an activity when he is responsible for working out the plan, method, or procedure by which the activity is performed[1] while he has line control of an activity if he is responsible for seeing that it is performed. An executive may have both line and functional control of an activity or he may have line control and not functional control and vice versa. In a functional organization much of the control of the executives is functional only.

Functional control is well illustrated by the authority of the executive head of the standards-and-records function, who in this text is termed the *controller*. He is responsible for working out administrative standards and records for the use of all the departments, but he has under his line control only a small percentage of the employees responsible for the maintenance and use of standards and records. A few simple examples will serve for purposes of illustration. If a firm markets its product through sales branches, some records will need to be maintained at each branch. If the accounting records at the branch are of sufficient importance an accounting department will be established there. The controller will prescribe the form of the records used by this department, but the head of the department may be under the line control of the branch manager. In a manufacturing business inventory records for materials will usually be kept by the balance of stores section of the planning department. The controller prescribes the form of the inventory records and the procedure by which they are kept, but the head of the balance of stores section is under the line control of the head of the planning department who is under the line control of the production manager. The cashier who is responsible for the receipt and deposit of cash is under the line control of the treasurer, but is under the functional control of the controller

[1] Sometimes functional control confers only the right of approval. In such cases the plan, method, or procedure must be approved by the one who exercises the functional control before it becomes effective.

since the latter prescribes the records and procedures for the use of the cashier. Many other illustrations of the functional control of the controller will be given in the following chapters, but the foregoing are sufficient to indicate to the student the distinction between his line and functional control. Other executives[1] than the controller exercise functional control, but we are not primarily interested in their authority at this time.

Functions of a Staff

Executives in the exercise of both line and functional control need information and advice procured from an impartial source.[2] It is the function of the staff members of an organization to supply this service. All of the principal executives may have staff assistants. The president of large firms usually has one or more staff assistants and frequently the sales manager and production manager do likewise. As we shall see later, the controller may make generous use of them.

Staff assistants must not be confused with executive assistants who assist the executives in the performance of their executive tasks. The staff assistants have no authority to enforce, they can only recommend. The executive assistants have executive authority in so far as it is granted to them by their superiors.

The term "staff" is sometimes used in a broader sense than that in which it is used here. For example, some writers and practitioners refer to the personnel manager, controller, and other such executives whose control is largely functional as *staff executives*. These executives do give advice and information to other executives, but they are responsible for the administration of a definite group of activities, so are not staff members of the organization from the point of view of this discussion.

[1] The head of the personnel department and head of the purchasing department both exercise such control.

[2] If line executives depend on line subordinates to supply information, this information may be biased because of the interest of the subordinates in the matters concerning which they are reporting.

Significance of the Standards and Record Function

The preceding discussion has pointed out that a business organization results from the delegation of duties. The delegation of duties requires the delegation of authority and responsibility for their performance. The more authority is delegated the greater becomes the problem of administrative control. When the chief executive grants authority to subordinates, he must have some means of determining whether they employ this authority properly. He must have some means of enforcing responsibility. Each executive who delegates authority to subordinates faces the same problem. Its solution requires the establishment of standards to serve as a means by which to judge the results of the activities of subordinates. Without such standards such judgments are impossible. Executives have always used standards, but in the main these have been of an informal nature and in many cases they have been inaccurate. Only in recent years have students of administration come to realize the full significance of standards and the need of careful and scientific research for their development.

Executives have also found that they need accurate and comprehensive information to serve as a basis (1) for the preparation of standards, and (2) for comparing current performance with the standards. To secure this information a well-balanced, comprehensive, and co-ordinated system of records is necessary.

The relation between standards and records is a very close one. Mr. G. Carter Harrison has very aptly said:

> Standards and records are as inseparable ideas as latitude and longitude, debit and credit, east and west. Standards without records are as ineffective as firing at a target would be if the marksman had no means of determining whether he was making hits or not, and, vice versa, records without standards would be equivalent to carefully recording the result of every shot but giving the marksman no definite target at which to aim. With standards and no records we are in the position of a traveler with a time table and no watch, while conversely with records without standards we are in the position he would be with a watch but no time table.

A very common illustration of standards without records is presented by the concerns who issue many rules and instructions but provide no systematic method of ascertaining whether such instructions are followed, with the inevitable result that they are more honored in the breach than the observance and in the innumerable systems which are operated in a way far different from that originally intended.

The following chapters will discuss the construction of standards and records and their use in the solution of managerial problems.

QUESTIONS FOR CLASS DISCUSSION

1. Brown and Smith form a partnership to conduct a retail dry-goods store. They each invest $10,000 in cash. What are some of the more important problems of policy, organization, and procedure which they will need to solve?
2. Their business proves very successful. Ten years later they decide to incorporate for $500,000 and to organize as a department store. What new questions of policy, organization, and procedure confront them?
3. Five years later the company increases its capitalization to $5,000,000 and organizes two new departments: (*a*) a wholesale department, and (*b*) a retail mail-order department. What new questions arise?
4. Five years later the company decides to construct factories to produce some of the articles which it sells. What new problems arise?
5. "Both the policies and the organization must be considered in establishing and enforcing operating procedures." Give illustrations.
6. What advantages and what disadvantages do you see in having executives as members of the board of directors?
7. "Policies should be adopted as a result of the careful thought of a deliberative body. They should be executed by specialists in the various fields of administration." Do you think this statement is correct? Can you give cases which are exceptions? Of what significance is this in the study of organization?
8. What are the advantages and the disadvantages of a functional organization?
9. What relation has the development of a functional organization to the development of the standards and records function?
10. "The development of a functional organization makes necessary a distinction between line and functional control." Why? Illustrate this distinction. Of what significance is it to us in our consideration of the standards and records function?

11. State cases in which the executive in charge of sales will need to co-operate with the executive in charge of production in the solution of administrative problems. State cases in which the executive in charge of finance will need to co-operate with the executive in charge of sales and the executive in charge of production for the same purpose. Explain how standards and records may be used to facilitate this co-operation.
12. John Brown is staff assistant and James Smith is executive assistant to the vice-president in charge of production of the King Manufacturing Company. Explain the difference between their probable duties.
13. "The controller has functional control and the production manager has line control of the inventory records for raw materials." What does this mean? What advantage is gained from this plan? Is there any disadvantage?
14. "The increase in the size and complexity of modern business has made necessary the development of facilitating and measuring devices which enable the manager to obtain a more complete grasp of the control of his problems." Explain and illustrate how this is true. Give illustrations of such "facilitating and measuring devices."
15. "Standards and records are significant in the administration of a large business, but they have little significance to the small firm and after all most firms are small." What about it?

EXERCISE NO. 1

John Meyers and James Wilson are equal partners in a retail hardware business operating under the name of Meyers and Wilson. They have sales of $50,000 a year. Meyers is responsible for purchasing of all goods and looks after all financial matters such as the receipt and disbursement of cash, and collection of accounts. He is also responsible for such records as are kept by the store. Wilson devotes the major part of his time to sales. He employs the clerks, looks after the display of merchandise in the windows and counters, and is responsible for the advertising.

Some years later Meyers and Wilson incorporate under the name of The Meyers-Wilson Hardware Company, and enter the wholesale field. New capital is secured by sale of stock but the partners retain the controlling interest. Meyers becomes president and Wilson vice-president in charge of sales. Within five years after incorporation their retail sales are $250,000 a year and their wholesale sales $500,000.

The corporation has difficulty in securing a satisfactory supply of some of the products it sells so it purchases the factory of a manufacturing firm and produces its supply of these articles. This venture proves profitable so the company constructs three additional factories at advantageous positions. It now produces 75 per cent of the volume of the products handled. The company further enlarges its activities by opening retail branches in fifteen cities. Its volume of sales is $25,000,000, a year. It enlarges its capitalization and changes its name to the National Hardware Company.

Required

1. Making and stating such assumptions as are necessary, prepare an organization chart for (1) Meyers & Wilson the partnership; (2) The Meyers, Wilson Hardware Company; (3) The National Hardware Company.

2. Attach a memorandum to each chart explaining the reasons for the organization you recommend.

REFERENCES FOR FURTHER STUDY

1. Frederick, *Business Research and Statistics*, chap. i.
2. Greenlinger, *Financial and Business Statements*, chap. i.
3. White, *Market Analysis*, chap. xix.
4. Marshall, *Business Administration*, chap. i.
5. Wildman, *Principles of Accounting*, chaps. iv and v.

CHAPTER II

CHARACTERISTIC FEATURES OF STANDARDS AND RECORDS

Definition and Nature of Standards

The term standard is used with various meanings by different writers. Their point of view in each case materially affects their definition of the term. From the point of view of the analysis and control of administrative activities, a standard is an expression of (*a*) the desired method of performing an activity or (*b*) the desired or expected result from the performance of an activity or group of activities.

Usually standards are not chosen because they are considered perfect, but rather because they are thought to be the highest possible attainments under existing conditions. Consequently, they should be subject to change at all times. Improvements in standards are wanted and adopted whenever and wherever they are found. There is nothing whatever in the nature of standards to preclude innovations. All that is demanded is that a proposed change in a standard be scrutinized as carefully as the standard was scrutinized prior to its adoption; and, further, that the work involved in making the change be done by experts as competent as those who originally framed the standard.[1]

Classification of Standards

The standards which may be employed in business administration are so numerous and varied that it is difficult to make an inclusive classification. For the purpose of the present discussion, however, the following classification will be useful:

[1] Morris L. Cooke, *Report to the Carnegie Foundation for the Advancement of Teaching*, p. 60.

1. Standards of procedure
2. Financial standards
3. Operating standards

These groups are closely related and overlap to some extent. This is particularly true of the last two. It is very difficult to make a classification which will prevent all overlappings. On the other hand, each of these groups could be subdivided if desired.

Many standards cannot be placed conveniently in any of the classes given above. For example, commodity standards, or those dealing with the quality and design of product, equipment, and buildings, are of frequent occurrence. Then we may have standards of practice, standards of nomenclature, standards of dimension, etc. All of these standards are significant, but we omit a consideration of them here, for they are not directly related to our problem. They are not sufficiently homogeneous to make their functional control expedient. In other words, they are not included in the standards-and-records function as that function is defined in this text.

Standards of Procedure

When a functional organization is established, it is necessary for two or more departments to co-operate in the performance of most of the important operations of a business. A simple illustration will give reality to this statement. It is the primary function of the sales department to secure sales orders. But a sales order is of no value unless it be filled and collection made from the customer. The sales department must secure the co-operation of other departments before these results are attained. The credit department must approve the credit of the customer; the stores department must deliver the goods to the shipping department; the shipping department must pack the goods and deliver them to the transportation company; the accounting department must invoice the customer and make a record of the amount due; and the collection department must see that the customer pays his account at the date of maturity. If each of these departments is to perform efficiently its part of this task, it must know definitely what it is to do as well as the best and quickest way of doing it. If the operation as a whole is to be performed effectively, each department must do its part in the proper sequence and must do it in such a manner as to facilitate the operations to be performed by the other departments. These objectives can be achieved best by working out a standard procedure for the handling of sales orders, and communicating this procedure in written form to all the departments concerned. This method provides definite instructions for all departments and tends to prevent conflicts of authority and errors.

There are numerous other operations requiring the co-operation of two or more departments for their performance, and for which standard procedures should be established. But even though an operation is performed entirely by one department, if it is to be repeated frequently a standard procedure for its performance should be worked out and established. This tends to increase the speed with which the operation is performed and to decrease errors. By performing the operation in the same way day after day employees acquire speed and accuracy.

Probably nowhere are standard procedures better illustrated than in a planning department of a manufacturing business. Where this department is fully developed, each form to be used in initiating and controlling work in process is prescribed, and a definite procedure is established controlling the issuance of these forms, their use while the goods are in process, and their disposition after the manufacturing process is completed. The duties of each employee are defined so that he knows exactly what he should do in furthering the manufacturing process.

Definite records are kept which show at all times the condition of the work in the factory. This makes possible a positive control of manufacturing operations at all stages of the process. The production engineer blazed the way in the establishment of standard procedures, but in recent years considerable progress has been made in working out similar procedures in other departments of the business.

Requisites for Satisfactory Procedures

1. Standard procedures should be developed and operated under the supervision of a central authority. If this is not done, the different departments will develop unco-ordinated procedures. This will result in duplication of work and will tend to cause errors and inefficiency. Each department, in developing its procedures, will have in mind its needs and may not appreciate the needs of the other departments. To take a simple illustration, the cashier, as an employee of the financial department, may develop a procedure for handling cash receipts. As one part of this procedure, he will prepare a record of all cash received. Since the cashier is not responsible for the accounting, he is likely not to have in mind the needs of the accounting department for information concerning cash receipts. Consequently, the record he prepares may not be in such form that it can be used as a posting medium to the general ledger. As a result, the accounting department will need to recopy the report on cash receipts as prepared by the cashier. On the other hand, if the procedure for handling cash receipts is worked out by an executive charged with the responsibility of preparing the procedures for all departments, he will design the cash record of the cashier so that a copy of it can be used as a posting medium by the accounting department. Duplicate work is thus eliminated. Numerous illustrations of a similar nature might be given.

Usually the designing and installing of standardized procedures is under the controller as head of the standards-and-records function in a business having such an executive. In other cases, this may be the task of the general auditor or chief accountant. In some cases, it is delegated to a staff assistant of the general manager. In a very small business this task may be performed by the general manager. The thing of primary importance is that it be under the control of a central authority who can bring about co-ordination and eliminate duplication.

2. Standard procedures should be reduced to written form and distributed to all who are concerned with their operation. Unless this be done, there is every probability that the procedures will be misunderstood. Failure to comply with them will result. This is even more likely to occur where changes in organization are made from time to time, resulting in the securing of new men or the promotion of old men to new positions. In the absence of written procedures, these employees are forced to master their tasks by the apprenticeship method. They can become efficient much sooner if the procedures are available in written form. Some firms establish training-classes to teach their organization and procedures to employees. In many cases, these classes have caused the preparation of written procedures where they did not previously exist.

Use of Orders in Establishing Procedures

It is customary to establish procedures by the issuance of orders prepared by the controller or by a staff assistant in the office of the general manager. It is usually preferable to leave this task to the controller where there is such an executive. These orders are issued over the signature of the president, vice-president, or controller. The following order of the Emergency Fleet Corporation, although general in nature, illustrates the form and contents of such orders.

July 25, 1918

General Order No. 101

To: District Managers and District Officers for action
To: Shipbuilders and others for information

SUBJECT: ORDERS FOR STEEL. PROCEDURE

a) Allocation
b) Contractors' preference or allotments of tonnages

These regulations apply to ships or ship-structures building under contract with, and to ships building under license from, the Corporation. They apply to materials to be demanded after receipt of these instructions.

a) *Allocation*

1. Contractors' detailed lists of materials are to be prepared in seven copies and forwarded to Mr. M. F. Brown, Executive Head, Raw Materials Section, Supply Division, Emergency Fleet Corporation, Corner Broad and Cherry Streets, Philadelphia, Pa., who will send three copies without delay to the Director of Steel Supply at Washington for allocation.

2. Lists of material will be prepared on standard forms issued for the purpose, and until standard forms are issued, the customary forms may be used which will show the mark, dimensions, and estimated weight of each item. Lists of material must be classified, plates, shapes, and bars separately, and each classification must show the total weight. The lists will have the items arranged to correspond with the required sequence of delivery of the material and shall indicate by proportion or groups the tentative shipping dates for each hull. Different classifications will not be placed on the same order sheet. Contractors will endeavor to group and schedule together among their earliest demands all special or odd shapes, or special items involving small tonnages and rarely rolled.

3. The Director of Steel Supply, after making allocations of lists of materials, will return one copy of the lists of material to the office of Mr. M. F. Brown, who will place the orders with the mills in accordance with allocation, sending a copy of his order and of the allocation to the contractor.

b) *Contractor's Preference or Allotments of Tonnages*

1. In order that the total output of tonnage allotted to the Emergency Fleet Corporation may be equitably distributed among the various contractors for each month, each contractor will, by the first of each month, through the officer in charge of his district, notify Mr. M. F. Brown of his

tonnage requirements of plates, shapes, and bars, for the month next but one succeeding, against each mill where his orders are placed. The Supply Division will, after conference with the Director of Steel Supply, notify each shipbuilder by the 10th of the same month as to his tonnage allotments from each mill. On receipt of this each contractor within five days will dispatch to the mill a detailed preference list of his desired rollings for the next but one succeeding month, following the item numbers on the lists as originally allocated, and sending copy to Mr. M. F. Brown.

2. Contractors requiring changes in these preference lists which they are unable to adjust with the mills, or experiencing difficulty in getting the amount allotted to them, will give notice to Mr. M. F. Brown, Supply Division, Emergency Fleet Corporation, who will endeavor to meet such emergencies.

3. A statement will be made by each mill not later than the third day of each month to the Director of Steel Supply (on forms furnished by him) and one copy to Mr. M. F. Brown, showing shipments made to each shipyard during the preceding month.

4. The reports required in paragraph 1 shall first be submitted by September 1, 1918, and monthly thereafter. The first report shall also show on a separate list the mill requirements for October in accordance with procedure already in force.

(*Signed*) Charles Piez, *Vice-President*

Financial Standards

The efficiency with which a business uses its capital is an important factor in determining its success or failure. Capital must be purchased and paid for, and its inefficient use leads to a loss just as much as does the inefficient use of labor and materials. That executives as a rule are aware of the significance of this fact is evidenced by the importance they have attached to the balance sheet as a report showing sources of capital and the form of its investment. It is further evidenced by the importance attached to the statement of income and expense, as a report showing the sources of income, the expenses incurred in earning the income, and the net income which represents the earnings of capital. During recent years, various other reports supplementary to these two major reports have come into current use.

These reports provide useful information; but its value is limited unless standards are available by which it may be judged. Financial statements are primarily expressions of business relationships. The abstract facts stated in the balance sheet or statement of income and expense may be interesting in themselves, but they will usually mean little until relationships are considered. The amount of inventories, of plant investment, or of current liabilities may be interesting in itself but of more importance are the turnover of inventories, the turnover on plant investment, and the ratio of current assets to current liabilities. Similarly, the amount of sales, expenses, or net income is more significant when judged in connection with turnovers, expense ratios, and the earnings on capital. These relationships can be best expressed by means of ratios. The most significant of these ratios are those showing the following:

1. The relation of borrowed capital to total capital
2. The relation of owned capital to total capital
3. The relation of each kind of assets to total assets
4. The relation of current assents to current liabilities
5. The relation of borrowed capital to the cost of capital
6. The relation of net profit to total capital
7. The relation of net profit to net worth
8. The relation of gross sales to gross profits
9. The relation of sales to net profits
10. The relation of sales to inventories
11. The relation of sales to accounts receivable
12. The relation of sales to fixed assets
13. The relation of sales to total assets
14. The relation of costs and expenses to sales
15. The relation of average inventory to cost of goods sold

The foregoing are intended to be suggestive only of the type of ratios which may be used in interpreting financial statistics. Obviously these ratios are of little significance if taken for one business at one time. After the ratio is obtained, there is no means of deciding whether it indicates a desirable or an undesirable condition. But if a firm knows from its own experience or the experience of other firms what the ratio should ordinarily be, it then has a standard by which to judge the ratios shown by its current reports. Much can be done by trade associations, public bodies, and private research to develop such ratios for the use of executives.[1] Ratios thus developed and used serve as standards by which to judge the efficiency with which capital is used.[2] Consequently, they are termed financial standards.

Operating Standards

Financial standards are not sufficient for controlling all administrative activities. There is need for another type of standards which we are calling operating standards. There are the following differences between financial and operating standards.

1. Operating standards may provide a more frequent comparison between the actual and the standard. Financial standards are based on the balance sheet and statement of income and expense. These statements are rarely prepared more frequently than once a month, and in some firms they are prepared only semiannually or annually. Consequently financial standards can be of service only intermittently. There are some operations which need to be subject to a continuous and current check. For example, standards of performance may be established for typists, billing clerks, posting clerks, and other employees whose work can be standardized. A daily comparison should be made between the standard and the actual performance. Credit standards may be set up resulting in the establishment of credit limits for individual customers. These standards must be used each time a sales order is received.

2. Operating standards may provide a check on individual operations while financial standards provide a check on the result of a group of operations. In many cases the individual opera-

[1] See Bliss, *Financial and Operating Ratios in Management*, Part II.

[2] It is of course apparent that they may be used for other purposes also.

tions need to be subject to current check if the result of the total operations is to be satisfactory. For example, a useful financial standard is the ratio of selling expenses to sales. But the totals of selling expenses and sales as shown on the statement of income and expense are a combination of the expenses and sales of the individual salesmen. If the totals are to show the desired result, the expenses and sales of the individual salesmen must be under constant control. This necessitates the establishment of standards by which to judge the daily, weekly, and monthly expenses and sales of salesmen. Otherwise it will be impossible to judge whether the reports of salesmen show satisfactory or unsatisfactory results, and when the financial statements are prepared at the end of the fiscal period it is too late to correct unsatisfactory results.

3. Operating standards may be expressed in other than financial terms. For example, standards of performance are usually stated in terms of physical units.

The operating standards used by different firms are too numerous to mention. Some of the more important of these have been indicated by the preceding discussion. The present discussion will be confined to one type of such standards, namely, budgets. This type is indicative of the nature of the whole class.[1]

Budgets as a Type of Operating Standards

If effective control is to be exercised over current operations, it is necessary to plan these operations and to set up standards of performance for the separate units of the organization. This results in the preparation of departmental and subdepartmental budgets. A budget is a statement of anticipated performance of one or more units of organization which has been approved by

[1] Operating standards are not sufficiently homogeneous to make it desirable to place the administration of all of them in one department. The major part of them, however, can be included in the standards and records function.

the executives, and in some cases by the board of directors. For example, the sales budget states the anticipated sales for the next budget period.[1] The production budget shows the anticipated production for the period; the selling-expense budget gives the expenses it is anticipated will be necessary to carry out the sales budget; the budget of accounting expenses sets forth the anticipated cost of maintaining the accounting records. The responsibility for the preparation of the budgets and the procedure by which they are prepared and enforced will be considered in chapter vi.

Budgets serve not only as standards by which to control current operations, they serve also as a means of co-ordinating the activities of the several departments. The plan for organization discussed in chapter i is conducive to economy and efficiency, but it is also subject to possible weaknesses. Each departmental executive is likely to become so engrossed in the activities of his department that he neglects to ascertain what is being done by other departments, or to have his plans co-ordinated with theirs. He is likely to forget that the function of each department is to work toward a common end—the welfare of the company as a whole—and that this end can be attained only by the co-ordinated effort of all the departments. Such co-ordination is facilitated by having an estimate of the operations of each department submitted to a central body which will work these over into a co-ordinated, balanced program for the business as a whole; and then on the basis of this program formulate a budget for each department. If frequent reports are submitted showing a comparison between the budget and the performance of each department, it will be possible to correct errors in the original budgets and all units of the organization can be working toward a common objective.

[1] The total estimated sales will preferably be subdivided to show the anticipated sales by divisions and branches as well as by individual salesmen.

Requisites of a Satisfactory Standard

The form and nature of standards must be conditioned by circumstances, but there are certain minimum essentials for all standards. The following are indicative of these requisites.

1. A standard should be as simple as possible. This makes it easy to understand, and easy to apply, and thus promotes efficiency and economy. This is especially true in connection with standard procedures. A difficult and complex procedure will result in errors and will also prove costly to operate.

2. A standard should be sufficiently comprehensive and flexible to fit all conditions. This again is particularly true in the case of standard procedures. Variations in the normal routine are necessary in most firms and the authorized procedures should be sufficiently flexible to provide for these.

3. A standard should be progressive and adaptable to changing conditions. It should not be an arbitrary one which fits present conditions, but must be changed as soon as the conditions change.

4. A standard should be determined by scientific investigation, taking into consideration all the anticipated conditions under which it is to be used. It should not be established by guesswork or haphazard methods.

5. A standard should be subject to constant review to determine its accuracy. It must, therefore, be capable of revision.

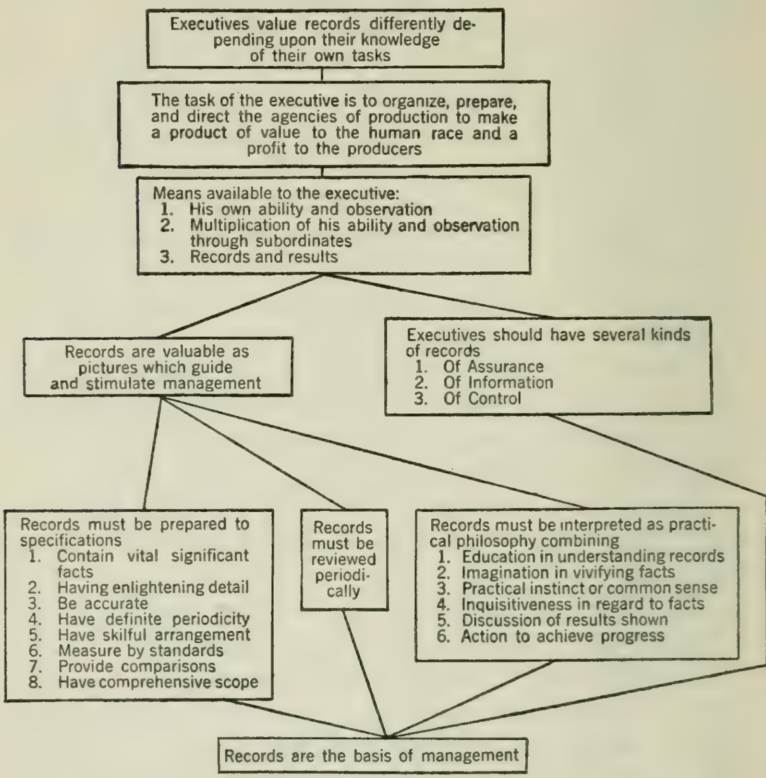
6. A standard should be stated in such terms that it is possible to obtain easily a comparison between the actual performance and the standard. To make a standard effective, there must be prompt and continuing comparison between the actual and the standard performance. In the establishment of a standard, consideration must be given to the method by which the actual performance is to be compared. For example, in the preparation of budgets, the estimated expense, sales, and production should

be shown with the same classification that is used in the accounts. The actual, as shown by the accounts, can then be compared with the estimates.

Definition and Nature of Records

The term record is used, in this text, to refer to a written statement of information which can be used in carrying on

CHART III



current operations or in judging past operations. This statement may be made in any form desired, provided it is written. It may be expressed in numerical or non-numerical terms. It may be and often is expressed in other than financial terms. Invoices, purchase and stores requisitions, time tickets, payrolls, general and special orders, ledger accounts, financial statements, statistical compilations and statements, minutes of committee or board meetings, inventory records, tickler files, and inter-departmental memoranda are all included under this head. An interesting conception of the nature and function of records is shown by Chart III.[1]

Classification of Records

Records may be classified in various ways, depending on the point of view of the one making the classification, and the purpose for which it is to be used. From the point of view of the terms in which they are expressed, records may be classified as follows:

1. Numerical:
   a) accounting
   b) statistical
2. Non-numerical

The records most frequently discussed in the literature of business administration are those relating to accounting. This is probably due to the fact that accounting records are kept in a more formal manner, and are in more universal use than those of any other type. They are also usually maintained by a centralized department; other records are prepared by various departments, and their existence is not so much in evidence. An analysis of the data used by business executives, however, will show that a large part is obtained from other than accounting sources. Moreover, there is a rapidly increasing tendency of executives to use these non-accounting records.

In most of the discussions which are to follow we shall deal with records of either an accounting or a statistical nature. Frequently, however, we shall refer to records which are expressed only partially in numerical terms, and in some cases we see the

[1] Franklin, *Management Engineering* (September, 1922), p. 133.

value of records which are entirely non-numerical. Many of the orders which establish standards of procedure may be expressed in non-numerical terms. Letter files, which contain a record of correspondence, are used by all the executives. Tickler files contain information which is stated largely in non-numerical terms. Other illustrations will occur to everyone.

Classification of Accounting Records[1]

Accounting records may be classified into three main groups: (*a*) auxiliary records: (*b*) records of original entry; (*c*) records of final entry. Auxiliary records contain data which is useful in carrying on the daily operations of the business and which supplement data shown in the records of original entry. For example, check stubs provide a means of determining the daily bank balance. In addition, they supplement and support the entries in the cash disbursements journal. Records of original entry provide a preliminary analysis of transactions and serve as mediums for transferring this analysis to the records of final entry. They are sometimes termed "posting mediums," and this title is quite indicative of their function. Records of original entry may not contain the first record of transactions, but they provide the first entry of them, if the entry is taken to imply an analysis of transactions to indicate their effect on the financial condition of the business. Records of final entry provide a summary and classification of transactions in proper form for the preparation of the financial reports. Records of final entry are termed ledgers.

AUXILIARY RECORDS

Auxiliary records may be classified as (*a*) evidence records, and (*b*) memorandum records. Evidence records usually take the form of bound stubs on which are recorded the same data as those written on papers detached from the stubs and given out in the course of business transactions. Check stubs, note stubs, draft, and receipt stubs are illustrations of such records. These records furnish valuable evidence of the papers issued in the course of daily transactions. This proof is unclassified, however, except by date and number. Such records as check and draft stubs afford data from which to record transactions in the books of original entry.

Memorandum records contain useful information of various kinds. Notes-receivable and notes-payable records, when they are not used as posting mediums, are examples of such records. They give information with

[1] From McKinsey, *Bookkeeping and Accounting*, pp. 1012–13, 1019–20.

reference to the due dates of the notes, rate of interest, where payable, the endorsers, and similar items. The tickler file of customers' statements, maintained by the credit and collection department, is another illustration of memorandum records. By means of this file, the credit and collection department can keep in touch with the payment of delinquent customers. Tickler files of various kinds may be maintained by executives and employees. For example, the controller may have such a file showing the executives to whom each of the periodic reports are sent. At the end of each period when the reports are sent, the name of each executive will be checked off. A similar file may be kept of those to whom the general, special and accounting orders are to be sent. The usual purpose of memorandum records is to call some particular class of facts to the attention of an executive.

In addition to the memorandum records kept for the use of executives and employees, there may be any number of statistical records maintained by the various departments of a business, or by a central statistical agency. From these, periodic reports are prepared for executive use.

RECORDS OF ORIGINAL ENTRY

Records of original entry serve two purposes: (1) they present a chronological history of the business; and (2) they serve as posting mediums. in the early development of accounting records, the first purpose was regarded as very important. Considerable detail was inserted in these records, and frequent reference was made to them for information. The present tendency is to record less and less detail in records of original entry, and to use them primarily as posting mediums. They are rarely referred to for information. The ledger provides the summarized and classified information usually desired by executives. If details are desired, it is more satisfactory to refer to the original business forms. This procedure is facilitated by the modern practice of having a business voucher to represent each transaction. In the early development of commerce, when the vendor and vendee dealt with each other personally and made exchanges without the preparation of vouchers, a detailed description of the transaction in the records of original entry was necessary. Under the present practice, the vendor and the vendee, dealing through their clerks, exchange vouchers which represent the transaction. By means of modern filing methods, it is more convenient to refer to the vouchers for information than to the record of original entry.

RECORDS OF FINAL ENTRY

The development of records of final entry has in many ways been similar to the development of records of original entry. In the early development of accounting records, all accounts were kept in a bound ledger with the standard ruling on the ledger page. Since the entries made in the records of original entry were posted individually to the ledger, the accounts contained many items and much detail. As the separate journals developed, it became more and more the practice to post totals from the records of original entry, and consequently the detail in many accounts was eliminated. The introduction of separate columns in the separate journals caused the posting of more totals to the accounts and the elimination of more detail. The next step in ledger development was the removal of certain groups of accounts, such as accounts receivable and accounts payable, from the general ledger, their maintenance in separate ledgers, and the introduction of controlling accounts in the general ledger which showed the total of the details shown in the subsidiary ledger. The use of controlling accounts and subsidiary ledgers has been greatly extended during recent years, until the general ledger often contains few accounts other than controlling accounts.

The introduction of controlling accounts has been followed by the use of loose-leaf and card ledgers for use both as general ledgers and subsidiary ledgers. In the development of subsidiary ledgers, it has been found desirable to show in the ledger information additional to that provided for by the standard ledger ruling. This has led to the development of various ledger rulings adapted to particular needs.

Requisites of Satisfactory Records

The form and nature of records must be conditioned by circumstances, but there are certain requisites which are of general application. The following are indicative of these requisites:

1. Records should be as simple as is consistent with supplying comprehensive data. This makes them easy to operate and tends to prevent errors. Specialists are always inclined to make their work technical. The accountant and statistician are not exceptions to this rule. They have a tendency to increase the complexity of the tools with which they work. Very often the records of a business are regarded by the general executives with an air of mystification. They cannot be easily understood by the one not trained in record-keeping. In many cases, a large part of this complexity can be eliminated by a little care on the part of the record-keeping group.

2. Records should be sufficiently comprehensive to supply the data to make accurate judgments. Judgments based on inaccurate or incomplete information are dangerous. Sometimes it is difficult or impossible for the executives to know the reliability of the information presented to them. If they rely on it and later find that it is inaccurate or incomplete, they may come to distrust all data prepared from the records of the business and attempt to rule by "hunch," instead of by judgments based on proper information.

3. Records should be capable of expansion to fit the changing needs of a growing business. The need of this is well illustrated by a classification of accounts. This should be so made that accounts can be easily added as necessity arises. If a classification of accounts is not prepared with the probability of expansion in mind, it may be necessary to change all or many of the accounts, when additional accounts are needed. This does not imply that an accounting system designed for a small business can be adapted to the use of a large business without considerable change. It is possible, however, at the same time that the records are designed originally to anticipate the probable increase in the volume of business for some years.

4. Records should be constructed and operated in such a manner that executives can secure, soon after the close of the fiscal period, the information which will serve to evaluate the success of the past period and to exercise control of the operations of the next period. Many firms have comprehensive reports which reach the executives so long after the close of the period they cover, that they are practically useless as a basis for executive action. If the executives can know on June 1 the results of the sales campaign for May, it will help them in planning and controlling the campaign for June; but this information is of little or no value for this purpose if it is not secured until June 25.

5. Records should be designed and operated so as to prevent as many errors as possible, and to provide for the detection of

those made as quickly and as easily as possible. The use of mechanical equipment in record-keeping assists in the prevention of errors. The use of controlling accounts facilitates the detection of errors. The development of a satisfactory system of internal check facilitates the same end.

6. Records should be designed so that the records of each department can be correlated with those of every other department. This prevents duplication and expedites business procedure. In the modern type of business organization, several departments must usually co-operate in the performance of each transaction. The first department which prepares vouchers relating to the transaction can usually prepare them in such form that copies can be used to give all the departments concerned the needed information. The centralization of the standards-and-records function facilitates such a procedure.

7. Records should be constructed so that they will correspond with the organization of the business, to the end that responsibility can be fixed and accountability exercised. Accounting records, for example, are of value in administrative control only when they enable executives to account. They are of little value when they are designed to provide primarily the information desired by the general auditor or chief accounting executive.

An Executive's Point of View

Mr. B. A. Franklin, vice-president of the Strathmore Paper Company, explains the "specifications" of satisfactory records, in a very interesting way in the following:[1]

> The first specification, if the picture is to be significant, is that the record shall contain the vital and significant facts about the event. Many records fail right there. For this specification, a very real study is required, because there are frequently a number of significant facts in an industrial event.
>
> The addition of enlightening detail constitutes a second specification, for if a significant fact is to be valuable to the utmost degree, or is to institute a decision of improvement, or even to carry conviction to the inquiring mind—or, indeed, as is very often necessary, to explain itself—it must carry

[1] *Management Engineering* (September, 1922).

with it its explanation in reasonable detail. Nothing is quite so irritating as a fact, bare and bald, which carries with it a doubt in the mind of the executive who must further wait to be shown the enlightening detail.

But a fact is not a fact unless it is accurate. So that a third specification is accuracy, which merely means to say that records must be proved or verified before submission, a condition needing no discussion.

A fourth specification of records is that they must have a definite periodicity. This periodicity may vary as to length from one hour or one operation to one year, or one or a series of jobs, but it should be as close as possible to the event, and should make plain the length and time of the period.

A fifth specification of records is arrangement. Just as in any picture, there are outstanding features with explanatory or completing details; so it is with a record. A busy executive should have his records so arranged that the important and decision-demanding elements strike his eye first and insistently, and the explanatory details arranged for observation in proper but less prominent order. Frequently the arrangement of facts makes for their arraignment when otherwise the necessities escape notice.

A sixth specification of records is standards. One cannot judge of results except as these results are measured by some expectation, and standards are measuring rules of attainment. The standards set are preferably calculated possibilities of attainment with the equipment and force employed, but they may in a developing situation be the final goal expected or necessary.

Comparisons constitute a seventh specification of records. It is true that with changing conditions and times, with changing wages and labor conditions, results change. Changing standards may take care of this situation somewhat but, even in similar conditions, variations constantly occur, and only comparisons bring these difficulties to the front for action.

It is here that charts play such on enlightening part, since they compress the comparisons so vividly and strikingly into a small space; and allowance may be made for variations to make comparisons.

An eighth specification of records as a whole, and indeed of any one record, is scope. If enlightening records are to be built with any idea of informing the executive of the progress of significant events in his industrial unit, there should be a survey as to what these events are, their relations, their inclusion, or separation with or from each other. In a similar way, this must also be a necessity with any one record so as to bring completeness and comprehensiveness as an aid to its quick understanding. Analysis and synthesis make for wide scope and complete, concise records.

Records, then, built on specifications showing vital and significant facts, with enlightening details, proved with accuracy, made definite and understandable by periodicity and arrangement, measured by standards and comparisons, and covering the field, and each section of it with ample and comprehensive scope, make for the executive with a desire to get a grip of his affairs the most powerful subordinate he can obtain. Records should be so measured!

QUESTIONS FOR CLASS DISCUSSION

1. "Business standards may be affected by social and political standards." Give illustrations of business standards which have been so affected. Give illustrations of the opposite. Of what significance is this to us in our present study?
2. Give business standards which have been established as a result of custom. Are these good or bad standards?
3. What developments of the past half-century have affected the development of business standards?
4. "Standards are necessary for a business which does not have an efficient personnel, since they must be used as a guide for members of the organization to follow, and as a check on what they do. But in a business with an efficient and well-trained personnel they are not only useless but a detriment, for they are not needed as a guide and serve only to limit the judgment and initiative of capable men. They are not needed as a check, for the members of the organization, being well trained, will consult with superiors before doing things about which there may be a question." Do you agree?
5. There has been much discussion during the past few years with reference to the proper fare to be charged by electric railways. Does the question of standards enter into this controversy? If so, what standards are involved?
6. Give illustrations to show how a lack of standards of procedure may result in a duplication of work.
7. Why has past performance been used so extensively as a standard? What is your opinion of this standard?
8. Explain and illustrate the relation between financial and operating standards.
9. Make a list of the operating standards which may be useful in the administration of: (*a*) sales; (*b*) production; (*c*) personnel; (*d*) finance.
10. "Budgets serve both as standards by which to control current operations and as a means of co-ordinating the activities of the several departments." Illustrate how they serve in each capacity.
11. Give the essentials of a satisfactory standard and illustrate each.

12. Explain and illustrate what is meant by records (1) of assurance; (2) of information; (3) of control.
13. In schools of business it has been customary to organize courses in accounting which treat of accounting records as distinct and separate from all other records. What do you think are the advantages and disadvantages of this method?
14. State and illustrate the requisites of satisfactory records.
15. Do you think the standards-and-records function has been developed more or less than the other functions of business administration? How do you account for this situation?
16. Explain and illustrate how records may be of service in establishing and enforcing (1) standards of procedure; (2) financial standards; (3) operating standards.
17. Explain and illustrate how each of these types of standards may be of service in the establishment and use of records.
18. "The accountant is a historian and not a prophet." What does this mean? Do you agree? Does this statement apply to the head of the standards-and-records function?

EXERCISE NO. 2

In Exercise No. 1, chapter i, there is discussed the development of the local retail store of Meyers and Wilson into a national sales and manufacturing company known as The National Hardware Company. The rapid growth of this company has been due largely to the ability of its originators, John Meyers and James Wilson, and of a few assistants whom they have selected as their aids. These men have managed the company largely by means of personal supervision of its activities and by intimate contact with subordinates. Meyers and Wilson have delegated authority tc only a few tried and trusted assistants.

The acquirement of the sales and manufacturing branches, and the consequent expansion in the volume of business, has caused the company greatly to increase its personnel. This in turn has necessitated the delegation of authority to a large number of executives. The few executives responsible for the management of the original company can no longer supervise all the activities of the new company, or maintain intimate contact with all members of the organization.

Two years after the organization of the new company, the general officers become convinced that it is not being administered efficiently. From time to time many undesirable conditions are discovered. Among other things the following have been brought to their attention:

1. That some sales branches have inventories largely in excess of their needs and that there is no uniformity in the relationship between inventory and sales in the different branches.

2. That some of the branch factories have far too large inventories of raw material. Others are hindered in their operations because of a lack of materials.

3. That the cost per unit of the same product in different factories varies widely. It is also found that there is a wide divergence in the cost of materials and labor at the different factories.

4. That the cost of machinery and the cost of constructing buildings at the various plants varies widely. It is also found that some plants have excess equipment; others do not have sufficient equipment. When the excess equipment of one plant is shipped to a plant lacking equipment, it is found that it cannot be used by the latter because it is a different kind of machinery from that which the plant uses.

5. The customers complain that some of the products of the company are of inferior grade. On investigation it is found that this is due in part to poor materials used by some plants, and is due in part to poor workmanship in some factories.

6. That customers complain that there is much delay in filling their orders and that some orders are not filled at all.

7. That creditors complain that their accounts are not paid when due. It is also found that many discounts offered by creditors are not taken.

8. That many bad debts are incurred and that collections are very slow.

9. That some branches and factories pay excess freight charges because of undetected errors of the transportation company.

10. That the compensation of salesmen and the expenses of salesmen vary widely as between branches. So, also, the sales secured per salesman at different branches varies greatly.

Required

Write a report addressed to the president of the company explaining: (1) The cause of these weaknesses in administration; (2) what should be done to correct the condition stated in each of the illustrations.

REFERENCES FOR FURTHER STUDY

1. Schulze, *Office Administration*, chap. xii.
2. Copeland, *Business Statistics*, chap. i.
3. Bliss, *Financial and Operating Ratios in Management.*
4. Marshall, *Business Administration*, pp. 838–42.

PART II

ORGANIZATION FOR STANDARDS AND RECORDS CONTROL

CHAPTER III

ORGANIZATION FOR CONTROLLERSHIP

Executive Head of the Standards and Records Function

The executive responsibility for the standards-and-records function may be vested in one or several individuals. The present trend in business administration is to have an executive head for each functional group of administrative activities. There should, accordingly, be an executive who is responsible for the establishment, operation, and use of standards and records. We are calling this executive the *controller*.

Although functions and duties may be the same or quite similar in various businesses, the plan of organization whereby these functions are carried out may and generally does vary in its details due to variations in custom and conditions. It follows that the duties here outlined for the controller are merely tentative and suggestive.

The present discussion assumes a business of sufficient size to have a well-defined organization. The controllership function exists in every business but it is usually more clearly discernible in a large business than in a small one and, therefore, the former serves best for purposes of our study. The general principles here outlined are equally applicable to small or large concerns but the method of carrying these principles out will vary according to the size of the business.

Different Methods of Fixing Responsibility for the Controllership Function

Some firms do not have a controller in fact. Many more do not have one in name. In the former the controllership function is performed inadequately if at all. In some cases each department is left to determine the standards and records which it will use. This leads to inevitable duplication and lack of co-ordination. In other cases the responsibility for the controllership function is distributed among two or more executives. One may be in charge of accounting records, another in charge of statistical records, another in charge of sales standards, another in charge of financial standards, still another in charge of budgetary procedure, etc. This usually leads to a lack of co-ordination and to much misdirected effort.

In those firms where the controllership function is in fact performed although a controller does not exist in name, we have a variety of situations. In many small firms the general manager acts as controller, though usually he does not realize that he is acting in this capacity. In such cases the controllership function may be so simple that a separate executive is not required for its performance. But as a business grows the tasks of the chief executive soon become so arduous that it is desirable to have a separate executive to perform the controllership function. In some cases the office manager acts in the capacity of controller. As long as the task is performed properly the title of the responsible executive does not matter. Office management, however, is only one phase of the work of the controller, and in most cases there is a tendency for the office manager, when he acts as controller, to emphasize the type of work which his title implies and to neglect the other duties of a controller. It is better, therefore, to have a controller with an office manager subordinate to him.

In some cases, notably investment banking firms, it is customary to have an *operating manager* who is responsible for all administrative tasks other than those relating directly to purchasing, selling, and financing. Accordingly the activities ordinarily assigned to the controller are under his jurisdiction. This practice probably arises from the fact that a high-grade executive is needed to administer this general group of operating activities but it is usually not economical to employ more than one such executive for their control. In some firms a considerable part of the controllership activities is delegated to the treasurer. This practice is probably due to the widespread custom of having accounting under the treasurer. Since many of the other activities which are ordinarily performed by the controller are closely related to accounting, they are delegated to the treasurer when he is executive head of the accounting department. In most cases the treasurer is not qualified by either training or temperament to perform the controller function. He is very likely to think mainly in financial terms and to emphasize the gathering of financial data to the neglect of other important phases of the controller's work, such as the establishment of standards and the collection of non-financial statistical data.

In the following discussion we shall assume the existence of a controller with centralized control of standards and records even though in the majority of business firms there is no such executive. This assumption will enable us to move forward more rapidly in our discussion.

Authority of Controller

The authority of the controller varies widely from business to business. In some, he acts only as the chief accounting officer; in others he has charge of accounting and statistics. In some, budgetary control is under his jurisdiction; in a few, he is responsible for office management; and in others, he has control of the financial operations of the business. Business executives, as well as controllers themselves, have varying conceptions of his function. This is shown by the following quotations, adapted from the *1922 Proceedings of the Controllers' Congress of the National Retail Dry Goods Association.*

I sometimes am asked to define the controller. I wonder if you gentlemen could give me a definition. We feel that we know what he is even if we can't define him. In each case he exercises his functions a little differently, but I feel that the controller stands today at the heart and I might say almost the head of your organization. He stands there as a check on the operating man. In the factory he is represented by the superintendent; in the store he is represented by other operating men. But in each case he is the man who stands as a check against the operating inefficiency of the store, or factory, or bank, or whatever it may be. It is through his eyes that the enforcement of the policies of the organization is guided and controlled. As I view the controller, he stands as that pivotal point in our business organization which takes the policies of the board of directors or the executive committee, and translates them into the operating methods, furnishing the control and system whereby those policies get operating expression.[1]

The foregoing states a broad point of view of the controller's function and is in harmony with that which we will have in the following chapters. A more definite statement of the controller's authority is given in the following:

First, the organization of the office comes under his control.

Second, he must plan the financial operations of the store, so that every dollar received returns its maximum earning power.

Third, by means of budgets he controls the spending power of the store both by merchandise purchases and by expense.

Fourth, he plans the sales requirements necessary to return sufficient profits based on expected expenditures.

Fifth, by means of statistics he portrays the results of past operations so that they in turn may be used to guide future operations on a proper basis.

. . . . Of course, if he is able to advise the buyer just when the proper time would be for him to buy a particular line of merchandise, when to lay off, when to pile on, he is functioning along ideal lines.[2]

A somewhat different view of the function of the controller is expressed by the following:

I like to conceive of the controller's department in our business as a service department to the sales department of the store. We think that it is the department charged with the tabulation of results. It furnishes a picture of those results to the other departments of the business. It has probably more to do than any other department with what I like to regard

[1] Lee Galloway, vice-president of Ronald Press Company.

[2] B. L. Brown, of A. I. Nomm and Sons.

its chief function, the providing of advice to the management. . . . . I cannot emphasize too strongly the necessity of advance planning. That applies not only to the merchandise functions, so-called, of the store; it applies equally well to the publicity function, to the financial needs and requirements, and to the selling services, and in fact to all the functions of a retail store.[1]

The following statement of the controller's task indicates quite well his relation to administrative problems:

> Since the controller is a compiler of figures in the establishment, since he knows the facts of the past and the present, he is in a very favorable position to sense the desirability of new policies or changes in present policies. From that very fact, he is in a position to recommend methods and policies which will be better than what are now in vogue; to suggest a more efficient organization; to investigate for hidden as well as obvious losses in operation; to see the trend of the past and present and from them forecast what the future has in store.[2]

These statements emphasize the importance of the controller's task but they do not provide a clear-cut outline of the activities over which he should exercise control. Neither do they distinguish between the line control and the functional control of the controller, and this distinction is of primary importance. In common with other executives, the controller exercises line control when he is responsible for the performance of a task. He exercises functional control when he is responsible for prescribing the manner in which a task is to be done, or when his approval must be secured before others can prescribe. A considerable part of the controller's authority is functional only. For example, he often prescribes procedures for whose enforcement other executives are responsible.

The authority of the controller from our point of view can be shown by a consideration of the following:

1. Relation of controller to records
2. Relation of controller to standards
3. Relation of controller to organization problems
4. Relation of controller to policies

[1] E. J. Frost, vice-president of William Filene's Sons Company.

[2] Charles S. Carroll, Halle Bros. Company.

Relation of Controller to Records

The controller should have line control of the central accounting department and the central statistical department maintained at the general office. The extent to which the accounting and statistical records of a business should be centralized is dependent upon a number of factors (see chapters iv and v). Most large firms now have a large part of their accounting and statistical records at the general office. In a small firm all accounting and statistical records are usually kept at one office.

The controller should have functional control of the records in all departments of a business. This makes possible a well co-ordinated system of records. The executives and employees of the several departments may suggest new records, or changes in old records, but these must be approved by the controller before they become effective. The controller may, of course, delegate to subordinates his authority to approve records of minor importance. New records or changes in old ones should be established by means of written orders issued over the signature of either the controller or general manager.

In some firms the controller is given authority over only those records which concern two or more departments. Each department is left free to adopt such records as it desires for its own use. It is contended that this provides a desirable freedom of action and that it is only when the records affect the operations of two or more departments that the co-ordinating work of the controller is required. This overlooks the fact that the controller is a specialist who is well qualified to give advice on technical matters of records and standards. His services should be employed by all the departments in the same manner that they employ the services of the purchasing department and the personnel department. It is realized, of course, that executives will keep some informal memorandum records for their own use about which they may not consult the controller.

Although the controller has control of the accounting and statistical records, he is not primarily an accountant or a statistician. In fact, the primary training and experience of the controller may not be in the accounting or statistical fields. In a manufacturing business where the production problem may be the most difficult one, the controller may well be a man with production training and experience. In a merchandising business the controller may well have had his major experience in the merchandising field. Training and experience in accounting and statistics are desirable for the controller but there are conditions where other factors than accounting and statistics may be predominant in their influence on the task of the controller. In all cases, however, the administration of accounting and statistics is only a part of his task.

Relation of Controller to Standards

The controller should have line control of the standards used by departments under his line authority and functional control of the standards used by other departments in so far as these standards fall within the standards-and-records function. His authority over standards can be explained more specifically by considering separately his relation to (1) standards of procedure, (2) financial standards, and (3) operating standards.

The controller has either line or functional control of all procedures required in the use of records for administrative purposes. He does not have control of the procedures involved in the performance of technical operations such as the mechanical operation of equipment. The control of such operations is the problem of the engineer. The controller, however, may cooperate with the engineer in determining what methods of operation are most economical. And if records are necessary for controlling the operation or to show the result of the operation the controller is responsible for establishing the procedure for their use. We are thinking here of records in the broad sense and not merely accounting and statistical records. For example, the controller should develop the procedure for handling the records of the planning department and most of these records are not accounting or statistical records in the strict sense of the term. In working out the procedure for handling records the controller in many cases finds it necessary to outline the operations to be performed in the carrying out of a complete process. For example, in working out the records to be kept of a sales order he will outline the operations to be performed in connection with the order by each department through which the order passes and the sequence in which these operations will be performed.[1]

The controller should be responsible for working out financial standards of the nature of those discussed in the preceding chapter although he may be assisted in this task by the treasurer, general manager, and board of directors. After such standards are formally adopted either by the executives or board of directors, it is then the task of the controller to prepare reports showing the variation of the actual from the standard and to provide information showing if possible the reason for this variation.

Operating standards are so varied in nature and their development has been so recent that it is difficult to state where the responsibility for their preparation and use should be fixed. Two general statements can be made concerning the relation of the controller to them. The controller should have control of the development and use of all the operating standards employed by the departments over which he has line control. He should usually have a similar authority over the operating standards which depend for their enforcement on a comparison between the standard and the actual as shown in the records kept under the controller's jurisdiction. For example, he will be responsible

[1] This does not mean necessarily that he will outline the procedure for the physical handling of stores or methods of packing. We are thinking primarily of the clerical procedure of handling the sales order.

for developing standard costs for factory operations, standard quantities of inventory of each article of raw materials, standard quantities of material to be ordered, and standard costs of selling. In developing these standards he will need to work in co-operation with one or more executives who exercise line control of the activities for which the standards are being set. After the standards are adopted the controller must give them expression in the records and submit regular reports showing a comparison between the actual and standard. He will also bring to the attention of the line executives from time to time changes in operating standards which varying conditions or further study indicate are desirable.

The controller bears a very large responsibility in the preparation and use of the departmental budgets which probably constitute the most important of the operating standards. First, he is responsible for preparing the procedure for their preparation. Second, he has full responsibility for preparing the budgets of the departments under his line authority. Third, he provides much of the information on which the departmental heads base their estimates and advises them in its interpretation. Finally, he prepares the periodic reports showing a comparison between the actual and the standard, assists to explain the variations shown by this comparison, and advises concerning revisions which should be made.

The authority of the controller over standards is frequently challenged by executives. It is often held that each department should develop and establish its own standards. There are three important objections to this.

1. Many standards are of interest and use to two or more departments. If they are developed by one of the departments interested, they are likely not to fit the needs of the others. This results in lack of co-ordination and in many cases duplication of work. This is particularly true in the case of standards of procedure. The controller has knowledge of the needs of all

the departments and, therefore, can work out standards which will fit these needs with a minimum of duplication.

2. The executives and employees of the different departments are usually not well trained for the development and establishment of standards. They are usually operating men who are not interested in such work. On the other hand, the controller and his staff should be well qualified by training and experience to do the task. If this work is left to the departments it will usually be slighted.

3. It is difficult for executives or employees to develop and enforce standards by which they are themselves judged. The controller can act in an impartial manner. He serves as a "check on the operating man."

Relation of Controller to Organization Problems

Standards and records are so closely interwoven with the organization of a business that the controller is often given authority to make investigations and recommendations concerning organization. He should be well qualified to act in this capacity. As head of the standards-and-records function he comes in contact with all departments of the business.

In some cases the controller has an assistant who spends the major part of his time in the study of organization problems. These include problems of lines of authority, fixing of responsibility, and the proper classification of administrative activities. In many firms the responsibility for the performance of duties is a matter of accident rather than the result of scientific analysis. The controller can do much to correct errors as well as to prevent future ones.

Outside of the departments over which he has line control the authority of the controller with reference to organization is advisory only. He usually makes his recommendations to the general manager or to a committee composed of the general officers. If his recommendations are accepted they are carried out through the line executives.

Relation of Controller to Policies

In most firms there is divided responsibility for the establishment of policies. The board of directors usually exercises control of all major policies while the general officers are granted authority to pass on minor policies. Regardless of where the final authority for the adoption of policies may rest the controller is in an advantageous position for judging the desirability of policies proposed and for recommending changes in present policies. His work brings him in intimate contact with all departments of the business. He has a perspective which is possessed by no other officer except the general manager. As executive head of the record function he should be the master of more significant information on the activities of the business than any other executive.

In some cases the controller is the chief financial officer of the business and as such is vitally concerned with its financial policies. In this text the financial function is considered a separate and distinct one, under an officer who reports directly to the general manager. There is, however, a very close relation between the work of the controller and the work of the financial manager. These executives should work in close co-operation in connection with both financial standards and financial policies.

Organization of the Controller's Department

Based on the foregoing discussion, the following organization of the controller's department is suggested: (1) executive office, composed of the controller and his assistants; (2) organization for accounting control; (3) organization for statistical control; (4) organization for budgetary control; (5) organization for office management. The first of these will be discussed in this chapter. The remainder will be discussed in the chapters immediately following.

Organization of the Office of the Controller

If the controller is to be held responsible for the duties outlined in the preceding discussion, he must have an efficient and well-organized corps of assistants. The size of this corps and the nature of its duties are dependent largely on the size of the business and character of its operations. In a large business it is desirable to have the following: (1) executive or line assistants; (2) staff assistants for research work; (3) functional representatives; (4) territorial representatives.

Executive Assistants

If the controller exercises line control of the activities suggested in the preceding discussion, he will be responsible for a large amount of administrative work. He should be relieved of as many administrative details as possible so that he may be free to devote his time to the more important problems of administrative planning. To this end, there may be one or more assistant controllers to whom the controller delegates such duties as do not need his immediate supervision. In some cases the heads of the accounting, statistical, and office management departments report to an assistant controller. Under this plan the heads of these departments will discuss with the controller only matters of major importance. The controller often has a staff of research assistants and these may be under the direction of an assistant controller.

In a large business it may be necessary for the controller to attend conferences of executives and to visit the different units of the organization for various purposes. In his absence the senior assistant controller will act in the capacity of controller. There may be numerous committees at work on problems relating to the co-ordination of departmental activities and in most cases the controller needs to be represented on each of these. If he finds it a burdensome task to attend these committee meetings personally, he may be represented by an assistant controller. These are a few of the many tasks which may be performed by the executive assistants.

Staff Assistants

The controller has many uses for staff assistants, especially in connection with the performance of tasks related to his functional authority. Extensive research may be involved in determining the desirable standards and records for all the departments and divisions of a business. Much of this research must be carried on by his staff assistants. In some cases this work is conducted by a *methods* and *planning* bureau in the office of the controller. Such a bureau not only recommends the standards and records to be adopted but also supervises their installation after they are authorized.

The controller may have staff assistants of various kinds. He may have an assistant who will be responsible for studying the reports of the company and calling the attention of the controller to significant facts. He may have an assistant skilled in engineering who will advise him with reference to technical matters. In some cases he has a trained auditor on his staff who examines the records of the firm and reports on their accuracy.

Functional Representatives of the Controller

In addition to the executive and staff assistants who are a part of his department, the controller may have functional representatives in other departments of the business, working with him to obtain a correlation of activities. These representatives may be responsible directly to the controller or they may be answerable to the line executive of the department where employed but under the functional control of the controller.

The following are illustrations of such functional representatives: (1) sales and publicity controller; (2) production controller; (3) buying and merchandise controller; (4) financial controller.

In some cases there may be need for a personnel controller if the personnel function is developed into a separate department. In other cases there may be an operating controller in charge of the general operating activities of the business.

The functional representatives of the controller do not act in an executive capacity. Their duty is to advise. The line executives exercise the control. The controller and his representatives make it possible for this control to be exercised in a rational way. These representatives may or may not bear the titles suggested above. The duties ascribed to them in the following discussion may be performed by controller's assistants or by assistants of the department executive. The purpose of the present discussion is not to formulate an arbitrary plan of organization, but to point out that these functions must be performed and that they should be correlated with the work of the controller.

A brief statement of the possible duties of each of these functional representatives will help to indicate more clearly the work of the controller's office and its relation to the offices of the other departmental executives.

Sales and Publicity Controller

The sales and publicity controller may be responsible for the following:

1. Supervision of the collection of statistical data with reference to sales and the preparation of reports to show how effectively the sales program is being executed. This would involve functional control of such records as may be kept by sales department.

2. Supervision of the sales expense budget and the preparation of reports in connection therewith.

3. Supervision of the advertising budget and the preparation of the reports which make possible its control.

4. Supervision of the establishment and use of sales standards.[1]

It is also the duty of the sales and publicity controller to advise on the preparation of the sales budget, selling expense budget, and advertising budget. The actual preparation of these budgets should be left to the executives responsible for their execution.

The Production Controller

The production controller may be responsible for the following:

1. Collection and interpretation of data as a basis of plans for more effective operating methods in production; preparation of operating procedures, based on this data, for consideration of executives.

2. Assistance in the formulation of the production budget and subsidiary budgets. The actual preparation of this budget should be left to the executives responsible for its execution.

3. Supervision of the execution of the production budget and the preparation of reports which will make possible comparisons of actual with estimated production.

4. Supervision of the formulation and use of production standards. This is a task of exceedingly large importance in the typical manufacturing industry.

In some manufacturing firms there is a production engineer who performs these duties. In many cases the production engineer reports to the production manager. Although there are substantial reasons why the production engineer may be under the line control of the production manager, he should be under the functional control of the controller in so far as he is formulating standards which fall within the jurisdiction of the controller. The standards which he recommends for adoption should have the approval of the controller.

[1] The functional representatives of the controller usually do not have functional control of all standards of the department to which they are attached but only those falling within the standards-and-records function.

Buying and Merchandise Controller

The buying and merchandise controller performs a function in the mercantile establishment similar to that performed by the production controller in a manufacturing establishment. Some of his most important duties are here given.

1. Collection and interpretation of data as a basis of plans for more effective operating methods in merchandising; preparation of operating procedures based on these data for the consideration of executives.

2. Assistance in the formulation of the buying budget and subsidiary budgets. The actual preparation of these budgets should be left to the executives responsible for their execution.

3. Supervision of the buying budget and the preparation of reports which will make possible control of this budget.

4. Supervision of merchandise stocks for the purpose of keeping them at the lowest possible minimum consistent with meeting sales demands. In an establishment carrying large stocks this task is of considerable magnitude and of great importance.

5. Supervision of the formulation and use of merchandise standards.

The Financial Controller

The financial controller may be responsible for the following:

1. Collection and interpretation of data as a basis of plans for more effective operating methods in the financial department; preparation of operating procedures based on these data for the consideration of executives.

2. Assistance in the formulation of the financial budget. The actual preparation of this budget should be left to the executives responsible for its execution.

3. Supervision of the financial budget and the preparation of reports which will make possible a control of this budget.

4. Supervision of the formulation and use of financial standards.

5. Supervision of the formulation and enforcement of credit standards.

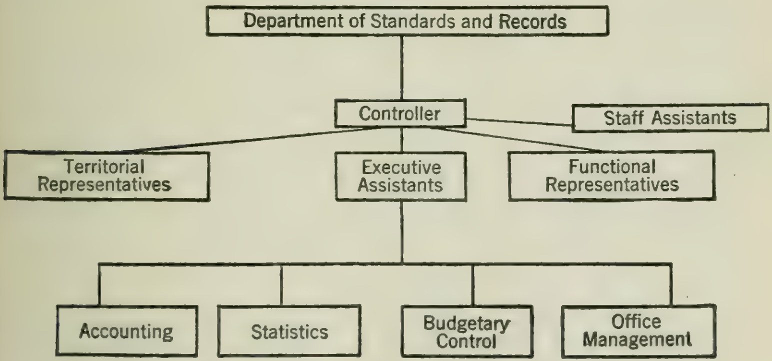
Territorial Representatives of the Controller

In a business which has factories located apart from its general offices or has large sales branches, the controller should have a representative at each factory or branch who will bear the same relation to that unit as the controller bears to the organization as a whole. Each factory and branch controller will be under the line control of the executive head of the factory or branch. He will be under the functional control of the controller and should be selected by the latter.[1] It is only where the separate units are comparatively large that it is expedient to have the separate controller. In other cases the controller can exercise control through the line executives of the unit.

Illustration of the Organization of the Controller's Department

The organization of the controller's department may be shown graphically in Chart IV.

CHART IV



The relation of the controller to the organization of the business as a whole can be seen by referring to Chart I.

[1] He may be selected by the plant manager but if this be true it should be with the advice and consent of the controller.

Relation of Controller to Others

In some firms the controller is chosen by the directors and reports directly to them. Under such circumstances the controller may serve in either of two capacities. He may serve merely as a "check on the operating man," reporting to the board of directors cases of inefficiency or conditions which need to be remedied. On the other hand, he may be placed on a par with the general manager and made responsible for the planning function of the business while the general manager is held responsible for the operating function only. In most firms the controller is elected by the board of directors on the recommendation of the general manager and reports to it through the general manager. The general manager is recognized as the connecting link between the board and all executives of the business and given jurisdiction over all the activities of the business.

There is merit in each of these plans. It is in harmony with the modern trend in business administration to recognize a clear distinction between operating and planning. This result is obtained when the general manager and the controller are recognized as the executive heads of operating and planning respectively. But this places the business under a dual leadership which is not good organization. Some firms overcome this difficulty by having the general manager and the controller both report to the chairman of the board of directors who acts as co-ordinating head. If the chairman engages actively in the administration of the business, there is no reason why this plan could not be satisfactory. Another alternative is to have a general manager on the same par as the controller and both of these reporting to the president. The general manager in this case might more appropriately be called *operating* manager. There is also merit in the plan of having a representative of the board act in an inspective capacity. It is doubtful, however, whether this is the task of the controller. It is more appropriate for this to be done by an executive termed *general auditor*.

In all cases the controller should be regarded as one of the principal executives of a business. He should have at least the official standing of the executives in charge of sales, production, finance, and personnel. Otherwise he is likely to have difficulty in obtaining the co-operation necessary for the successful accomplishment of his task.

It should be apparent that the controller will need to work in co-operation with the line executives. After standards and records have been formulated by the controller and his staff (presumably in conference with the other executives), it is customary to have them approved by a central committee before they are adopted. This is a desirable plan to follow in the case of standards and records of major importance. In the case of those of minor importance, they may be adopted upon their approval by the heads of the departments concerned. After they are adopted they should be promulgated by written orders prepared by the controller and issued over the signature of the controller or the general manager.

In the performance of his tasks the controller is required to deal with unfamiliar technical matters. This situation may be met in part by the functional representatives of the controller. In many firms, however, it is not feasible to have such representatives. Even when they do exist it may be necessary for the controller to consult other employees of the corporation to obtain technical information which he needs. For example, he may consult the legal counsel of the corporation on legal matters, members of the engineering department on questions of maintenance costs, the production engineer on procedures relating to production control, etc. The task of the controller is such that he can scarcely hope for success unless he is able to secure the co-operation and assistance of all members of the organization.

The Controller as Co-ordinator

If the controller is to be responsible for the preparation and enforcement of the budgets of the company as well as for the preparation and enforcement of the standards and records of all the departments, it follows that he must keep closely in touch with the policy-making executives. This can usually be best accomplished by setting up co-ordinating committees or boards and by making the controller a member of each board. The following are indicative of the kinds of boards which may be established:

1. General sales board
2. Purchasing and production board
3. Operating board
4. Financial board

The functions of these boards are illustrated by the following extract from the regulations of a large corporation:

The general sales board. The general sales manager as chairman, the general merchandise manager, and controller shall hold at least weekly meetings as a general sales board for the discussion of the sales policies of the corporation. This board will consider sales and selling expense estimates and come to advisory conclusions as to a budget.

The purchasing and production board. The purchasing and production board will include the general merchandise manager as chairman, the general factory manager, and the controller. It is its function to consider the purchase and production policies of the corporation. It will give particular attention to the consideration of the purchase estimates for both raw materials and finished goods and will report to the president of the corporation advisory conclusions as to a budget.

Operating board. The operating board will be composed of the general managers of the operating houses under the chairmanship of the general operating manager. The controller should attend these meetings as a member of the operating board. This board should consider the general operating policies and systems of the corporation and submit advisory conclusions through the general operating manager to the president. The controller will discuss the operating expense budgets for the various houses and the income and expense budgets at meetings of the operating board.

Financial board. The financial board will be composed of the president as chairman, the treasurer and the controller. It will discuss the financial policies of the business and will give particular consideration to the funding requirements of the corporation as shown by the various budgets.

QUESTIONS FOR CLASS DISCUSSION

1. Do you think most business firms have a controller who performs the functions suggested in this chapter? Do you think they should have such an executive? Do you think the "controller" function is performed in those which do not have such an officer?
2. "Though functions and duties may be the same or quite similar in various businesses, the plan of organization whereby these functions are carried out may and generally does vary in its details." Why is this true? Do you think it desirable that it should be so?
3. "Each department knows best the statistics which it needs to control its operations. It is preferable therefore to let each department gather such statistics as it needs, and not to have a centralized statistics department." Do you agree?
4. What reasons can you give for placing the following under the jurisdiction of the controller: (*a*) accounting, (*b*) statistics, (*c*) office management, (*d*) budgetary control, (*e*) standards? How else might each of these functions be handled?
5. In some companies the controller is the senior financial executive of the company. Do you think this is desirable?
6. Explain and illustrate the distinction between the *line* control and the *functional* control of the controller.
7. "The controller will prescribe the procedure to be followed in maintaining the accounting records at the branches, but the branch bookkeeper may be under the line control of the branch manager." Why is this so?
8. "Each department knows best how to carry on its operations and should be left free to devise the methods by which these operations are to be performed. To permit the controller to prescribe the procedures of the various departments not only leads to inaccuracies but also destroys the initiative of the members of the department." What about it?
9. The production manager of the X Company contends that he often sees the need of changes in production procedures before they are apparent to the controller and that delay is caused by waiting on the controller to initiate procedures. Do you agree?
10. The executives of the X Y Company contend that the issuance of orders authorizing operating procedures should be discontinued. They assert they do not have time to read and study them sufficiently to master them and that they are unnecessary, since their contents have been discussed before their adoption, so that all the executives know what they contain. Do you agree?

11. What is the benefit of having all reports issued from the office of the controller?
12. "It is desirable to relieve the controller of as many administrative details as possible, in order that he may be free to devote his time to the more important problems of administrative planning." Give illustrations of such problems to which he may give his attention.
13. In many businesses there are numerous committees which work on problems relating to the co-ordination of departmental activities and in most cases the controller needs to be represented on each of these." Give illustrations of such committees. What do you think of their value? Why should the controller be represented on them?
14. You recommend that a controller, who will perform duties analagous to those stated in this chapter, be appointed for the X Company. The president contends that it is impossible to find a man who would have the required general knowledge and technical information necessary to perform such a task. How would you answer this argument?
15. "Of course, if the controller is able to advise the buyer just when the proper time would be for him to buy a particular line of merchandise, when to lay off, when to pile on, he is functioning along ideal lines." Discuss.
16. Outline the organization of the office of the controller in a large corporation. Indicate the changes which may be made in this organization in a smaller corporation.
17. State the executives with whom the controller may consult, and explain the assistance which he may obtain from each.
18. Explain the functions performed by the "co-ordinating boards" discussed in this chapter. Are there other functions which the boards mentioned might perform?
19. Are there other boards in addition to those mentioned which might be employed? Are there other officers who might be members of any of these boards? Can the functions performed by these boards be performed in any other manner?

EXERCISE NO. 3

The Wilson Manufacturing Company has its general offices located at Chicago. It has a factory at Chicago and another at Omaha. It has ten sales branches located in the principal cities of the United States. The president has reporting to him at Chicago the following executives: (1) Vice-president in charge of sales; (2) vice-president in charge of production; (3) treasurer; (4) purchasing agent; (5) personnel manager; (6) office manager; (7) chief accountant; (8) traffic manager; (9) secretary; (10) head of organization and methods division; (11) head of statistical department; (12) head of research department; (13) legal counsel; (14) advertising manager; (15) credit manager; (16) and superintendent of branch houses. He also has reporting to him two staff assistants. The vice-president in charge of sales has reporting to him ten division managers, and each of these managers has control of a number of salesmen. The vice-president in charge of production has reporting to him the works manager of the Omaha factory. The vice-president has direct control of the Chicago factory. At each branch and plant there is an accountant who reports directly to the chief accountant at the general offices. There is also an office manager at each branch and plant who reports to the office manager at the general offices. These local accountants and office managers are not responsible to the branch and plant managers.

The company employs 7,000 men and has sales of $16,000,000 a year.

Required

1. Prepare a chart showing the organization of the company.
2. Write a report to Mr. A. W. Wilson, the president of the company, giving any objections which you see to the present organization of the company. Attach a chart showing the organization which you would recommend.

REFERENCES FOR FURTHER STUDY

1. Guernsey, "The Province of the Controller," *Administration*, June, 1923.
2. *1922 Proceedings of Controllers Congress, National Retail Dry Goods Association.*

CHAPTER IV

ORGANIZATION FOR ACCOUNTING CONTROL

Need for Accounting Organization

The records of a business, which provide numerical data, can be roughly divided into two groups: (1) accounting records and (2) statistical records. The controller in the exercise of his jurisdiction over records usually finds it desirable to establish separate organizations for the administration of each of these groups. Thus we have an organization for accounting control and an organization for statistical control. The former is discussed in this chapter and the latter is discussed in chapter v.

Different Methods of Fixing Responsibility for the Accounting Function

The accounting organization in any particular business must vary with the size of the concern and the nature of its operations. In practice it varies to a considerable extent from business to business. A few of these variations will be noticed.

In some firms the treasurer supervises the accounting work as a subdivision of the financial department. The continuance of this practice is largely a result of custom, but the origin of the practice can be explained on historical grounds. The treasurer is responsible for carrying on the relations of the business with its merchandise creditors, bankers, bondholders, and, to a considerable extent, its stockholders. It was in connection with these relationships that accounting data were first needed. In response to this need the treasurer initiated the use of accounting records and developed the accounting department under his jurisdiction. This plan seems to secure satisfactory results in many firms, but it is doubtful whether it is a desirable form of organization. Although the treasurer may serve satisfactorily as head of an accounting department dealing with financial statistics only, he is seldom qualified by experience or training to be executive head of the standards and records function. Where the accounting department is under his jurisdiction the controllership function is ordinarily not developed. Furthermore this organization leads almost necessarily to the preparation of all reports in financial units, for the typical treasurer almost instinctively thinks in such terms. The difficulties arising from this procedure have been explained. In some firms the office manager is head of the accounting department. This organization probably reflects the fact that in many offices a considerable part of the employees are in the accounting department. Since the head of the accounting department has control of these it seems natural to extend his authority over the other clerical employees. In a small business where it is not economical to employ a separate head for each of these functions this organization may work satisfactorily. Many firms continue to combine these functions, however, long after the volume of business makes their separation expedient.

The modern tendency is to have a separately organized accounting department with a responsible executive head reporting to the controller (if there is such an executive) or to the general manager. The existence of a separate department is assumed in the following discussion.

The Chief Accountant

The executive head of the accounting department is known by various titles. Quite frequently he is known as the *general* auditor, although a general auditor should be responsible for verifying the accuracy and correctness of records as kept rather than for keeping them. Sometimes an assistant controller acts as head of the accounting department. The terminology of accounting, like that of business administration as a whole, is neither exact nor standardized.

In the present discussion, the term *chief accountant* will be used to designate the head of the accounting department. Other terms which are sometimes used for the purpose are *general accountant*, *head accountant*, and *plant accountant*.

Centralization of Accounting Control

The duties of the chief accountant and the organization of his department are largely dependent upon the extent to which accounting control is centralized. The present tendency is distinctly toward the centralization of accounting control in the general offices of a company. The following advantages result from this centralization:

1. Since the records are mainly in the general office they can be brought under the direct supervision of the chief accountant and under the indirect supervision of the controller. This tends to promote accuracy and efficiency.

2. As a result of concentration the volume of work becomes sufficient to make possible the employment of more efficient employees. If the records of several branches are concentrated at the home office a high-grade bookkeeper may now be employed; or if several employees are required, an efficient supervisor can be secured. If the records are kept at the several branches it will probably be possible to secure only a low-grade bookkeeper for each branch.

3. As a result of concentration it is possible to bring about a "division of labor." This will probably extend to securing mechanical equipment. The use of such equipment promotes a saving in both time and cost, if the volume of operations is sufficiently large.

Although marked advantages may be gained from centralization of accounting work, the following points should not be forgotten.

1. Records serve primarily as an administrative aid and they may be more useful if kept so that they are readily accessible to

those who need them. If records are all kept at a central office, executives and employees in other units of the organization may not be able to secure the information which they desire. If a proper system of reports is maintained this difficulty will be minimized.

2. That it usually promotes economy and accuracy to have details summarized by those who are responsible for their performance. Consequently it is usually desirable to have vouchers summarized by the unit of organization responsible for the transactions which give rise to the vouchers, instead of transferring these vouchers to a central office. A compromise is to centralize the records of final entry but have the responsibility for the preparation of the entries of original records decentralized.

Duties of the Chief Accountant

It is the duty of the chief accountant to supervise the accounting records of the company. Working in co-operation with and under the direction of the controller, he is responsible for the preparation of the following:

1. The accounting reports needed by the executives of the company, and the reports used in transferring information from one department or division to another. These latter reports are often made in the form of journal vouchers as explained in paragraph 4 below.

2. A classification of accounts which will provide a proper framework for securing the information to be presented to the executives.

3. A system of records to serve as posting mediums to the accounts. Such records are necessary for effectively collecting and summarizing the information in the accounts.

4. Standard journal voucher forms to serve as a means of summarizing details and of transferring these details from the point of origin to the unit responsible for their entry in the summarized record, The effective use of these vouchers neces-

sitates the formulation and enforcement of a standardized procedure for their preparation, distribution, and use. In many cases these vouchers are used as posting mediums and thus take the place of the records discussed in paragraph 3.

The preparation and use of such reports, accounts, records, and vouchers involves the entire accounting procedure from the performance of a transaction until its final effect on the financial condition of the business is shown on the reports.

The chief accountant has line control of the accounting department of the general office. Acting through the controller, he has functional control of the accounting records in all units of the business. The method by which this control is exercised will be discussed later.

Internal Organization of the Accounting Department

It is customary for the chief accountant to organize the accounting department in sections, to each of which he delegates a certain part of the work under his jurisdiction. Each section is under the control of a section head who reports directly to the chief accountant.

The number of these sections and the duties which each performs depend on a number of factors of which the following are most significant:

1. The size of the business and the volume of the transactions which are to be performed. As the volume of accounting work increases the general principles of division of labor apply in the same manner as in other realms.

2. The nature of the operations performed by the business. The accounting department of a manufacturing business will be organized differently from that of a department store. For example, the former will have a cost-accounting section not needed by the latter; the latter is likely to have an auditing division for auditing and summarizing the numerous sales tickets. This is not needed by the former. There are obvious differences

in the organization of the accounting departments of such different organizations as a professional firm of accountants, a university, a hotel, a retail store, a real estate firm, and a bank.

3. The organization of the business. A business with sales and manufacturing branches will need a different organization of its accounting department from one whose activities are all concentrated at one place.

4. The extent to which the accounting records of a business are centralized. If there is a high degree of centralization, the greater volume of work in the central accounting department will lead to a more minute division of work, with consequent establishment of additional sections.

The most which can be done in such a discussion as this is to indicate the typical divisions of an assumed type of business. The general principles thus developed may be applied to any other type of business.

Typical sections for the accounting department of a manufacturing business with sales branches are the following:

1. General-ledger section
2. Cost-accounting section
3. Accounts-receivable section
4. Accounts-payable section
5. Billing section
6. Pay-roll section
7. Branch accounting section
8. Tabulating section

General-Ledger Section

The general-ledger section makes, for control purposes, a summarized record of the information collected and used by all the other sections. It is the central control section into which flow in condensed and classified form the data recorded by the other sections in detail. This section has control of the following:

1. The general ledger containing the general assets and liability accounts of the company and controlling accounts for each

branch or division of the company. As explained hereafter, some of the asset and liability accounts may be kept in a private ledger. The general ledger usually contains the expense and income accounts of the general office but these may be kept in a ledger which is subsidiary to the general ledger if desired.

2. The books of record which serve as posting mediums to the general ledger. In many cases these consist of journal vouchers which are received from the other sections and filed in loose-leaf binders.

3. The preparation of vouchers for all charges by the general office to the branches or other units. These charges may be for interest on investment in the branch, for the branch's share of the overhead expenses of the general office, and for other items. These vouchers are prepared in duplicate and one copy serves as a posting medium to the general ledger; the other copy serves as a posting medium to the ledger of the unit to which it is sent.

4. The preparation of the periodic balance sheet and statement of income and expense. The section may be responsible for the preparation of other reports but usually these are prepared by the statistical department or by the office of the chief accountant.

Cost-Accounting Section

The cost-accounting or "works-accounting" section is responsible for the accounting records of the operations of the factory. This section has control of the following:

1. The factory ledger, containing the accounts which control the factory operations. The factory ledger is controlled by a factory ledger account on the general ledger.

2. The records of original entry, serving as posting mediums to the factory ledger. In many cases these consist of journal vouchers received from other sections and filed in loose-leaf binders. For example, journal vouchers received from the accounts-payable section will give the charges to expense accounts

and materials accounts; vouchers received from the pay-roll section will give charges to the labor accounts.

3. The detail cost sheets showing the costs of individual orders or jobs, if the job-order system of cost-finding is employed.

4. The preparation of the journal vouchers summarizing the factory operations for the use of the general-ledger section at the end of each closing period. At the same time vouchers will be prepared serving to close the periodic expense accounts in the factory ledger.

5. The preparation of the periodic expense analysis showing the expenses of each of the production departments.

Sometimes the cost-accounting section is placed in the production department instead of in the accounting department. It is contended by those who support this view that the production department needs to make continual use of cost data and that this is facilitated by having the cost-accounting under its control. As long as the accounting department maintains functional control of the cost records it is not so important whether the head of the cost-accounting section reports to the production department or the accounting department. However, it is very necessary that the cost-accounting records be tied into the general accounting records. This necessitates frequent transfers of information between the various sections of the accounting department and the cost-accounting section. These transfers are facilitated by having the cost-accounting section under the line control of the accounting department. The information the production department desires from the cost-accounting records can be obtained from the reports prepared by the cost-accounting section if these are designed properly and are made promptly. These reports must be made promptly if they are to be of service to production executives. One reason for the desire of the production executives to control the cost-accounting is the belief that by this means they can secure the desired reports more promptly. This is not necessarily true if the accounting department functions properly.

It is sometimes contended that the accounting department does not understand production problems and is, therefore, not qualified to design accounting records for the use of the production department. This same objection is urged against having a controller in charge of standards and records in all departments. As previously explained, the controller will have technical experts on his staff and these will be available for advice to the accounting department. In a small business where such experts are not available the accounting department will work in co-operation with the production department in designing cost records. In opposition to having the cost records under the control of the production department it may be urged that the production department is likely to be as ignorant of accounting methods as is the accounting department of production methods, if not more so.

Accounts-Receivable Section

The accounts-receivable section has control of the following:

1. The accounts-receivable ledgers showing the accounts of the customers. These ledgers are controlled by the accounts-receivable account on the general ledger. The accounts receivable of the branches may be kept by the general office, or by the accounting department of the branches. In either case, they are controlled by the accounts-receivable account on the branch ledgers.

2. The preparation of monthly statements to be sent to the customers and for the use of the credit department.

Accounts-Payable Section

The accounts-payable section has control of the following:

1. The vouchering of all invoices.

2. The maintenance of the vouchers-payable records which shows the voucher distribution.

3. The preparation of checks in payment of the vouchers, to receive the signature of the treasurer.

4. The maintenance of paid and unpaid voucher files.

5. The preparation of the record of cash disbursements.

6. The preparation of the journal vouchers summarizing the voucher distribution for the use of the general ledger and cost-accounting sections.

Billing Section

The billing section has control of the following:

1. The extension of all sales orders. After the goods called for by the sales order have been shipped, the shipping department returns the sales order, or a copy of it, to the billing section where the extensions are made. If a separate pricing section is not maintained, the billing section may both enter the price on the order and make the extensions.[1]

2. The preparation and distribution of all invoices sent to customers or to branches. The use of these invoices in making the accounting records will be explained later.

Pay-Roll Section

The pay-roll section has control of the following:

1. Pricing and extension of all labor tickets.

2. Preparation of pay-roll for use of the cashier in paying employees.

3. Preparation of reports to accounts-payable section which will serve as a basis for entering labor costs in the voucher record. It may also make reports to cost-accounting section for use in making entries for labor cost on the detail cost sheets; or it may forward the time tickets to the cost-accounting section and let it make entries direct from tickets. In some cases the cost-accounting section performs the work of the pay-roll section.

Branch Accounting Section

The branch accounting section is the intermediary between the accounting department of the general office and the branches. It has control of the following:

[1] In a manufacturing business prices are frequently entered on the sales order by the inventory clerk.

1. The accounting records of each branch kept at the general office. The extent of these records depends upon the method of handling the branch accounts. The methods employed are discussed in chapter xxxviii.

2. The preparation of summarized reports to the general-ledger section from which the latter makes entries to its branch controlling accounts. These reports are usually made by means of journal vouchers.

3. The preparation of the financial reports covering branch operations. It can do this only on condition the branch ledgers are maintained at the general office, but if this is not done there is no need of a branch accounting section.

Tabulation Section

If tabulating machines are used in the compilation of accounting and statistical data, it is customary to establish a separate section of the accounting department to handle this work. This section will usually have control of at least the following:

1. The tabulation of sales invoices and purchase invoices to show any classification desired for control purposes.

2. The tabulation of material issue tickets and labor tickets to show the classification desired for entry in the cost records.

3. The preparation of reports showing the results of the tabulations performed in paragraphs 1 and 2.

This section may be used to compile a great many kinds of statistical data if desired. If a statistical department, such as that discussed in the following chapter, is maintained, it will usually perform the work which would otherwise be performed by the tabulating section of the accounting department.

The Private Ledger

Sometimes the executives do not wish the employees to know certain facts of the business. To avoid this they take out of the general ledger the accounts showing this information and keep them in a private ledger. A private journal may be kept for recording the entries to be posted to the private ledger. The private journal and ledger will usually be kept by one of the executives or by a confidential clerk.

Some of the information kept in the private ledger is: salaries of executives and special employees; cost of investments; net earnings of the business; distribution of profits; amount of surplus; amount and nature of stock holdings.

Relation of private ledger to general ledger.—A controlling account for the private ledger is kept in the general ledger. It is usually called "Private Ledger." A corresponding account entitled "General Ledger" is kept in the private ledger. The balance of the private-ledger account in the general ledger should offset the balance of the general-ledger account in the private ledger at all times.

To illustrate the operation of the private ledger, it may be assumed that the X Company maintains a private ledger in which are recorded, among other items, the salaries of the executives and the payment of dividends. All cash is recorded in the general ledger. At the end of the month the treasurer, under whose supervision the private ledger is kept, draws checks amounting to $20,000: in payment of officers' salaries, $5,000, and in payment of dividends which have been declared payable on the last day of the month, $15,000. He informs the bookkeeper in charge of the general ledger that he has withdrawn $20,000 in cash which is chargeable to accounts kept in the private ledger. The bookkeeper will make the following entry on the general ledger:

Private ledger	$20,000	
Cash		$20,000

On the private ledger the following entry will be made:

Officers' salaries	$ 5,000	
Dividends payable	15,000	
General ledger		$20,000

At the end of the fiscal period a trial balance is taken of both the private and general ledgers. These will be combined to obtain the information necessary for the financial reports.

The Interrelation of Accounting Sections

To make up their records some sections of the accounting department need to secure information from other sections. The general-ledger section must receive information from the branch,

CHART V

JOURNAL VOUCHER

From__________ Voucher No.__________

To__________ Folio No.__________

Nature of Entry__________ Date__________19__

	Account and Description	Detail	General Ledger			Private Ledger	
			Debit	Acct. No.	Credit	Debit	Credit

Entered__________ Approved__________

Bookkeeper General Auditor

cost, tabulating, billing, and accounts-receivable sections; the cost-accounting section must receive information from the tabulating, accounts-payable, and pay-roll sections to make its records of original entry There must be some means of transferring this information in a classified and summarized form if the records of the various sections are to be kept in an efficient manner. Journal vouchers designed in form similar to Chart V are usually employed for this purpose.

Vouchers of uniform size and ruling and numbered consecutively should be used for the transfer of information between all accounting sections. A separate number is assigned for each type of information to be transferred. For example, voucher No. 1 may be prepared by the accounts-payable section to show the charges for labor while voucher No. 2 may be prepared by the same section to show the charges for materials.

Scheduling of Journal Vouchers

The first requisite of a well-conducted accounting system is to have the voucher reports made promptly and regularly. While the head of the accounting department must be responsible for the maintenance of the accounting records, he cannot accomplish his task unless those responsible for the initiation of transactions realize the importance of reporting them promptly. They can be made aware of their relationship to the general problem of records control if a journal voucher schedule is established requiring them to fill out certain forms by a stipulated time.

The establishment of such a schedule necessitates that the section responsible for the preparation of each voucher be indicated, and a date established for its completion and transmission. After the schedule is established the chief accountant must give careful attention to its enforcement. One method of enforcement is to have all vouchers made in triplicate and have one copy sent to the office of the chief accountant. A clerk checks these on a schedule maintained in the office. If any voucher does not arrive by the scheduled date, investigation can be made to ascertain the cause of a delay.

Relation of Chief Accountant to Other Executives and Employees

The chief accountant is under the line control of the controller and works under his direction. The controller either outlines the classification of accounts and the supporting records to be used, or approves those prepared by the chief accountant. The chief accountant is responsible for the maintenance of the records and accounts after they have been authorized and for preparing reports from the accounting records. The controller may prescribe the form and content of the reports, but the chief accountant is responsible for their preparation. Usually the chief accountant submits the reports prepared by his department to the controller for approval before they are distributed.

The attitude of the chief accountant to the public auditor should be one of cordial co-operation The inspection of the books of account by the outside auditor is necessary to inspire confidence in the impartiality of the accounting statements. The judgment of the outside auditor is made in an impersonal way without the bias that quite naturally may arise in the mind of the accountant who is associated with the activities of one particular business. The functions of the outside auditor may vary from checking the work done to making constructive suggestions for improving the methods of recording and presenting accounting and statistical data. In the past the public auditor devoted himself primarily to the task of verification. The modern tendency is to value his advisory services, because he brings a new point of view and he is able to suggest improvements out of the wealth of his varied experience with many kinds of business.

The chief accountant must maintain an intimate contact with the heads of the various departments. He is responsible for preparing the accounting reports for their use. They are responsible for providing much of the information which goes into the accounting records. Each should strive to understand the problems of the other so that their co-operation may be effective.

Much of the data with which the statistical department works is obtained from the accounting department. There must accordingly be very close co-operation between these departments.

The General Auditor

In large business firms it is customary to have a *general auditor* who is responsible for verifying the accuracy and correctness of the accounting records. He performs a function similar to that of a public auditor only he maintains a current check on the records instead of making periodic verifications of them. Even if there is a general auditor the service of the public auditor is desirable since his audit gives to creditors and stockholders the assurance that the records of the firm have been verified by one who is independent of the organization of the firm.

The general auditor should be independent of the chief accountant and the accounting organization. In some cases he reports to the controller but it is probably better for him to report directly to the general manager.

Use of Control Accounts

In a comprehensive accounting organization the records of some sections must show in summarized form information shown in detail in other sections. This is accomplished by the use of *controlling* accounts. A controlling account shows in summary what is shown in detail in other accounts. In modern accounting practice extensive use is made of controlling accounts. Their use makes possible the delegation of responsibility and the enforcement of accountability.

Illustrations of the need of controlling accounts have already been given. The general ledger is composed largely of such accounts. It contains an accounts-receivable account which controls the customers' ledgers maintained by the accounts-receivable section; an accounts-payable account which controls the creditors' accounts shown by the records of the accounts-payable section; a factory-ledger account which controls the factory ledger maintained by the cost-accounting section; one or more branch ledger accounts which controls the ledgers maintained for the branches; and a plant and equipment account which controls the plant ledger. The factory ledger in turn contains controlling accounts with work in process, materials, etc.

If a private ledger is kept it will contain a controlling account with the general ledger and vice versa.

Controlling accounts are of service not only as accounting devices but also as instruments of control. By their use it is possible to delegate responsibility for the performance of a division of the accounting work and to check the correctness with which it is performed through the control account maintained for this division. This makes possible the delegation of authority and responsibility as well as the retention of effective control.

Use of Mechanical Equipment in Accounting Control

The large increase in the volume of operations performed by accounting departments in recent years has made profitable the use of machines as facilitating devices for:

1. Adding
2. Calculation or computation
3. Preparation of accounting and statistical statements
4. Preparation of accounting records
5. Statistical analysis

The first four of these will be considered in this chapter and the fifth will be discussed in the next chapter.

Adding Machines

Adding machines are the oldest type of machines used in accounting work. They may be used to advantage in any case where it is necessary to obtain frequently the total of a series of numbers. The simple type of adding machine is used only to arrive at totals to be entered into records or to check the accuracy of totals shown in the records. The modified adding machines serve other purposes, as explained below.

Calculating and Computing Machines

Most of the so-called *adding* machines are now equipped to perform the other mathematical calculations of subtraction, multiplication, and division. There are other machines which are particularly adapted to perform all kinds of calculations. The purpose of these machines is either to provide data which serves as a basis of records or to check the accuracy of data entered in the records.

Preparation of Statements

Machines may be used to prepare various kinds of statements. Probably their most important use in this connection is in the preparation of customers' monthly statements of account. The writing of customers' statements in a large wholesale office is a good example of the advantages resulting from using a machine for this purpose. The machine is used to print automatically dates, descriptions, and amounts; add the amounts exactly as written; and to find the real balance. It works more accurately, more quickly, more legibly, and more uniformly than any clerk. There is also a valuable by-product of this process. The balance of each account as mechanically computed by the machine is used in an audit of the balance of that account as figured in the ledger. Thus the work of the ledger clerk in posting, balancing, and writing the statement is checked before the statements are sent to the credit department or the mailroom.

Preparation of Accounting Records

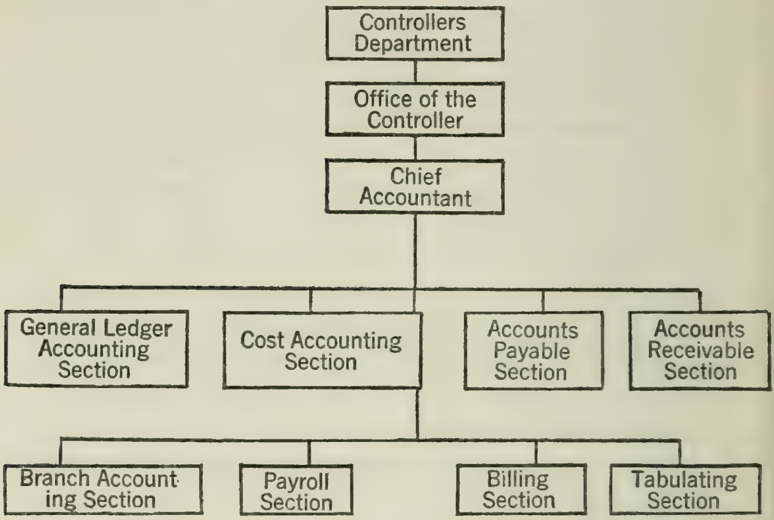
Machines may be used in various ways in the making of accounting records. Any part of the accounting records may be made by machines, but it is in connection with the construction of the ledger record that they are used most extensively. If numerous accounts are to be kept to which frequent entries are made, machines may be used to advantage. They are used most frequently in the preparation of (*a*) the accounts-receivable ledger; (*b*) inventory records. They are also used in the preparation of voucher-payable records, pay-rolls, job-cost records, etc.

Illustration of Accounting Organization

To illustrate concretely the organization through which accounting control is exercised, a chart (VI) is given. It gives a typical organization of the accounting department of a large

CHART VI

ORGANIZATION OF ACCOUNTING DEPARTMENT



manufacturing business and indicates the lines of control. No attempt is made to show the organization of the controller's department as a whole but its relation to the accounting department is shown.

QUESTIONS FOR CLASS DISCUSSION

1. Explain the advantages and disadvantages of having the following executives as head of the accounting department: (*a*) treasurer, (*b*) office manager, (*c*) assistant to general manager, (*d*) general manager, (*e*) chief accountant, (*f*) credit manager, (*g*) assistant controller, (*h*) production manager.

2. "The present tendency is distinctly toward the centralization of accounting control in the general office of a company." What advantages and what disadvantages may result from this plan?
3. "By concentration it is possible to bring about a division of labor which is not possible in a decentralized system." Illustrate concretely how such a division of labor is of advantage in the performance of accountign work.
4. "It usually promotes economy and accuracy to have details summarized by those who are responsible for their performance." Illustrate.
5. Classify the duties of the chief accountant in terms of the accounting process over which he has jurisdiction.
6. Give five illustrations of the functional control of the chief accountant.
7. Give illustrations of five journal vouchers which would be used as posting mediums by the general-ledger accounting section. Trace these vouchers from the point of origin to final disposition.
8. The credit manager desires to know the promptness with which John Brown, a customer of the company, has paid his invoices. To which section of the accounting department should he apply for this information?
9. The treasurer desires to know the accounts payable falling due during the next week. From which section of the accounting department should he seek this information? How will this section obtain the information?
10. The sales manager desires to know the unit cost of certain items to use as a basis of quoting prices. From which section should he request this information? How will this section obtain it?
11. The X Company decides to transfer the branch ledgers from the general office to the branches. What effect will this have on the branch accounting section of the accounting department?
12. The sales manager desires to know the following information: (*a*) sales made by each salesman; (*b*) sales made in each state; (*c*) sales made of each commodity. How will he obtain this information?
13. The cashier is responsible for paying the factory employees each week. How does he determine the amount due each employee? Explain the procedure by which the payment will be recorded.
14. The treasurer is responsible for signing all checks issued. Who is responsible for the preparation of these checks? How does the treasurer know that the checks are prepared for the proper amount?
15. How does the general-ledger accounting section obtain the following: (*a*) its record of cash receipts; (*b*) its record of cash payments; (*c*) its record of purchases made; (*d*) its record of sales made?

16. How does the accounts-receivable section obtain the following: (*a*) the charges to each customer's account; (*b*) the credits to each customer's account?
17. An inspector of the internal revenue department desires to know the salaries of the officers of a corporation. How can he obtain this information from its records? For what purpose may he desire this information?
18. The monthly accounting reports of the X Corporation are not submitted to the executives of the company until thirty days after the close of the period. The head of the general-ledger accounting section says he cannot submit them earlier because he does not receive from the other sections the information needed to close his ledger. What remedy would you suggest?
19. The controller of the M Corporation contends that the accounting system of the company is so effective that errors are rarely made and if they are made they are quickly detected. He asserts that this condition makes unnecessary the employment of a public auditor to make a periodic audit of the accounts. What is your opinion?
20. Give five controlling accounts which will usually appear on the general ledger and trace the complete procedure involved in collecting and recording the information appearing as debit and credit items in these accounts. Show how mechanical equipment may be used in the performance of this procedure.

EXERCISE NO. 4

The Controller of the Hood Manufacturing Company has reporting to him the following: (1) Assistant controller; (2) head of corporation accounting; (3) head of plant accounting; (4) head of branch accounting; (5) head of foreign accounting; (6) superintendent of plant auditors; (7) superintendent of branch-house auditors; (8) head of statistical department; (9) director of budget; (10) cashier; and (11) auditor of disbursements.

Required

1. Prepare an organization chart of the controller's department. Attach to this chart a statement showing in outline form the probable duties of each of those who report to the controller.

2. Write a report for the controller giving your criticisms of the organization of his department. Attach a chart showing the organization as you think it should be.

REFERENCES FOR FURTHER STUDY

1. Gerstenberg, *Principles of Business*, chap. xxix.
2. Diemer, *Factory Organization and Administration*, chap. xxii.
3. Galloway, *Office Management*, chap. xxviii.
4. Small, *Industrial Management* (March, 1920), pp. 183–86.

CHAPTER V

ORGANIZATION FOR STATISTICAL CONTROL

Need for Statistical Data

The increase in the size of the business unit and the development of the modern type of business organization make imperative the need of accurate and comprehensive information concerning both the internal and the external factors which influence the success of a business. Without such information, the ability of executives to render efficient administration is greatly limited. "No business man is greater than the amount and facility of his information. It is a severe enough task for the best of business brains to plan wisely and with originality even after the essential facts are at hand; to attempt to do so with poor or incomplete information is a grave and an unnecessary business risk."[1]

A considerable part of the information which business executives need can be supplied by the accounting records if there be established an adequate organization for the control of such records. The information supplied by the accounting department is limited, however, by the fact that the accounting records are restricted primarily to the expression in financial terms of the effect of business transactions on the financial condition of a business. This is valuable and essential information, but it is inadequate for an effective control of all the operations of a business. It does not explain many of the factors which cause the results shown by the records. It shows the effect, but in many cases does not make evident the causes. To determine the causes, information must be gathered from

[1] J. George Frederick, *Business Research and Statistics*, p. 196.

sources extraneous to the accounting records. That part of this information which is expressed in numerical terms we call statistical data.

We are not interested here in drawing a sharp line of demarcation between accounting and statistics. It is doubtful whether such a line can be drawn. Statistics, in the broad sense, is the technique of gathering, interpreting, and presenting in intelligible form information which is capable of being expressed numerically. The term is quite inclusive and, in the strictest sense, accounting is merely a single phase of the employment of the statistical method. Generally speaking, accounting data are those showing the results of business transactions, and are capable of being expressed in financial terms, by means of the technical procedure of bookkeeping, while all other data expressed in numerical terms are statistical data. There are many border line cases, however, which are difficult to classify.

Need of Statistical Organization

Just as there must be an accounting department responsible for collecting, classifying, and presenting accounting data, there must be a statistical organization responsible for the collection, classification, and presentation of statistical data, if this service is to be rendered in an efficient manner. "Scientific analysis of business and industrial problems requires, first, a point of view; and second, a method. The point of view is an unconditional demand for the truth; the method is (1) intelligent observation; (2) impartial analysis; (3) logical inference; and (4) sincere application of the conclusion reached to the problem to which the facts and observation apply. Business facts are numerous and increasingly complex; they are ever changing in content and application. To know them requires keen observation; to secure them, organization; and to apply them, determination and business integrity. There is a science of business and industry, the underlying facts and principles of which can be determined. They must be applied, if planning and foresight are to take the place of guessing and rule-of-thumb action."[1]

Proper organization is a prerequisite to efficient administration of all divisions of business activities. The statistical division is no exception to the general rule.

Centralization of Statistical Control

Students of administration do not agree concerning the extent to which statistical control should be centralized. The practices of business firms are also divergent. In most firms, statistical control is not centralized; but this is probably due to the fact that it is incompletely organized rather than to any conscious decentralization. There are distinct benefits to be derived from centralization. The following are the most important:

1. *Uniformity of expression.*—If executives receive statistical data from various sources, they are likely to be expressed in different terms and presented in different forms. This increases the task of interpretation. It also makes very difficult the combination of data received from two or more sources. A centralized department can easily provide for uniformity of expression.

2. *Prevention of duplication.*—If different units are permitted to collect their own data, duplication is almost sure to result. It is not difficult to find illustrations of one department busily collecting information already in the files of another department. Even where the data desired by two departments are not exactly the same, they can usually be collected jointly much more economically than separately. A centralized department knowing the needs of all the departments can determine the most economical way of satisfying them.

3. *Development of specialists by division of labor.*—A centralized department makes possible a division of the statistical work along

[1] Horace Secrist, *Statistics in Business*, p. 4.

functional lines and the assignment of tasks to those best fitted for their performance. By this division of labor it is possible to develop specialists in the various phases of statistical work.

4. *More efficient supervision.*—If the work is centralized in the general office, it is possible to have it performed under the supervision of an efficient and capable department head assisted by a trained staff. If it is decentralized it is likely to be assigned to some assistant or clerk who may or may not be qualified.

5. *Better methods of presentation and interpretation.*—In a centralized department it is possible to develop methods of presentation which are not feasible under a decentralized plan. In some cases special display rooms are established. The head of the department is available for discussion and explanation of the data presented, and he may have assistants who are adept in interpreting data.

6. *Better equipment.*—In a centralized department it is possible to secure equipment for tabulation and computation work which it is too expensive to secure for the separate units under a decentralized plan.

There are certain disadvantages which may arise from centralization. The following are the most significant:

1. Under a centralized plan, the department may develop a bureaucratic attitude and may forget that it is a service department whose prime function is to render service to the operating departments. Because of its centralization it may lose touch with the various units of the company and may fail to realize the nature of the problems with which they have to deal.

2. The central department may not have a sufficient knowledge of the various departments to be able to render efficient service to the departments. One way of overcoming the difficulty is to provide the statistical department with staff assistants who have expert knowledge of the various departments.

3. The centralized department may lead to the centralization of statistical records, and thus may not make readily available

information which executives and employees may desire. One way of overcoming this difficulty is to have adequate and comprehensive reports which will provide the information desired by the executives. Another way is to leave the records (to which it is desirable to refer frequently) in the departments where they are needed. Centralized control does not mean necessarily the centralization of all records. It is only necessary that the statistical department have functional control of them, wherever they may be compiled or kept.

All in all, it is probable that efficient administration of statistical work can best be accomplished by concentrating this work as much as possible in the statistical department in the general office. This department should then have functional control of the statistical records and procedures throughout the company. The head of the statistical department will report directly to the controller. He will exercise his functional authority through the controller, but the latter may give him authority to act directly in appropriate cases.

Different Methods of Fixing Responsibility for Statistical Work

Most business firms do not maintain a separate organization unit for statistical control such as that sketched in the foregoing discussion. In many cases the statistical work done is performed by the accounting department. This is likely to result in the statistical work being regarded as a side line and developed only to the extent to which pressure is exerted on the accounting department by the other departments. Moreover, the accountant is usually not a trained statistician.

In some cases, the statistical department, like the accounting department, is under the control of the treasurer. This plan is subject to all the objections applicable to having the accounting department under the treasurer. Occasionally a statistical department will be developed under the sales manager or production manager. This plan is objectionable for the reasons that

(1) it breaks down functional lines of authority; and (2) it places the statistical department under the control of an executive whose activities the department may be called upon to criticize. The head of the statistical department should be entirely free to comment either favorably or unfavorably upon the operations of the financial, production, personnel, and selling departments, and this freedom is limited if he is subordinate to the head of any of these departments.

In many firms where there is no controller, the head of the statistical department reports directly to the general manager. The latter is then responsible for the co-ordinating function which would otherwise devolve on the controller. In small organizations where it is not expedient to have a statistical department, statistical work may be under the control of a staff assistant in the office of the general manager.

Relation of Statistical Departments to Research Work

During recent years there has been a decided tendency to carry on research to obtain the information necessary to make scientific planning and operating possible. Scientific management had its origin in connection with the operations of the production department; and probably it is in connection with industrial activities that research has reached its greatest development.

Recently, however, there have been attempts to apply the principles of scientific management to all the functional departments. This has led to the development of research in other than the industrial field. The significance of the research work has increased until some business firms have found it expedient to establish a department of business research in control of all the research activities of the business. Most firms, however, have not thought it desirable to have a separate department for the performance of this task. Some have delegated the work of research to the statistical department. There is much to be said in favor of this plan; much of the research work consists of the collection, presentation, and interpretation of statistical data. It is true that research involves something more than this. One must be more than a statistician in order to carry on research work effectively. But for that matter, the head of the statistical department must be something more than a statistician if the statistical work is to be performed efficiently. If the head of the statistical department is trained in research work, there is no conclusive reason why the statistical department may not perform the research function. The present discussion has in mind research of the kind ordinarily termed commercial research, and does not refer to technical research which may be under the control of an engineering department. If a separate research department is organized, it should be under the authority of the controller so that it will work in close co-operation with the statistical department. The controller can prevent duplication of work and can bring about an economical allocation of duties.

Relation of Statistical Department to Accounting Department

The statistical department uses two kinds of data: (1) those dealing primarily with the results of the operations of the business, termed internal data; and (2) those dealing primarily with operations and conditions which may affect the operations of the business, termed external data. Of course it is not possible to draw a definite line between internal and external data. Many will be found on the border line.

Many of the internal data used by the statistical department can be obtained from the accounting department. Some can be obtained from the usual periodic reports prepared from the accounting records. Some must be obtained specially for the use of the statistical department. Two plans may be followed in securing these: (1) the statistical department may request the accounting department to collect and present the information; or (2) the statistical department may have its investigators collect the information from the accounting records. In most cases, it has been found that both methods can properly be used. The controller can usually best determine the appropriate division of responsibility.

In any event, two things are quite evident: Upon the one hand, the accounting department and the statistical department must work in close co-operation both in the collection and presentation of internal data. Care must be exercised to see that the statistical reports supplement instead of duplicate the accounting reports. Upon the other hand, the statistical department must have on its staff one or more members who are trained in accounting. Otherwise the department will not know what information to seek from the accounting records, how to secure it, or how to interpret or use it.

Division of Work of Statistical Department

The preceding discussion has considered the relation of the statistical department to the organization of the rest of the business as a whole. It is now necessary to see how the work of the department may be divided as a basis for its internal organization. The work performed by the statistical department may be classified roughly into the following divisions:

1. Administrative and staff work
2. Collection and analysis of internal data
3. Collection and analysis of external data
4. Preparation of reports and exhibits
5. Analysis of reports and exhibits and recommendations based thereon

Administrative and Staff Work

The statistical department should be administered by an executive head who reports to the controller, or, in the absence of such an officer, to the general manager. He may be assisted by both executive and staff assistants. The work of his staff assistants may be very important in a highly centralized system of statistical control. He may have experts in the various functional fields who will have supervision of the collection and interpretation of data in these fields. He may have an assistant, trained in sales administration, who will supervise the collection and handling of sales statistics, an assistant trained in production administration who will perform the same function in connection with production data, etc. In a business which is not of sufficient size to make possible the maintenance of such a staff in the statistical department, each department may designate an assistant to work under the functional control of the statistical department in the procurement of statistical data.

If the statistical department is responsible for research, which is usually the case, there may be trained investigators on the staff of the department who are responsible for directing the research work. These assistants will co-operate, of course, with the employees of other departments in carrying on research work relating to departmental problems.

Collection and Analysis of Internal Data

The first work of the statistical department should usually be the collection of internal data for the executives. Statistical research, like charity, may well begin at home. There is usually a vast amount of unused and unanalyzed material which can be put to good purpose. If the accounting records are kept properly they will yield much useful information. If they are not, the first problem is to determine how they should be kept. The sales records, the production records, and the personnel records will provide information useful for the formulation and enforcement of programs. Other records will also provide information useful in formulating departmental plans and in co-ordinating these plans into a program for the business as a whole. The nature of this information and the method by which it is used will be given consideration in the discussion of the control of departmental activities presented in subsequent chapters. It is desired to emphasize here that the collection and presentation of such data should be a definite part of the responsibility of the statistical department.

Collection and Analysis of External Data

In providing a basis for comprehensive planning and definite action, the statistical department soon finds that it must co-ordinate external data with its internal data. The kinds of external data which may be collected are almost innumerable. In order to determine merely the trend of market conditions, financial writers suggest that the executive should have information concerning the following:

1. Stock and bond prices
2. Unfilled steel orders and pig-iron production and prices
3. The condition, yield, and prices of the principal crops, e.g., wheat, corn, and cotton
4. Bank clearings in New York and outside of New York
5. The ratio of reserves to note and deposit liabilities for the commercial banking system as a whole
6. Ratio of loans to deposits in New York
7. Interest rates
8. The flow of gold
9. Foreign trade and exchange rates
10. Labor conditions
11. Railroad conditions
12. Business failures
13. New building
14. Price movements of principal products
15. Social and political conditions

Much additional information in the form of external data is needed in planning purchasing, personnel, and financial operations. It can be easily seen that the collection of this data is of sufficient significance to make expedient a separate section of the statistical department for this task.

Preparation of Reports and Exhibits

After the internal and external data are collected and analyzed, they must be correlated so as to show their reciprocal effect, and they must then be presented in such form that they can be conveniently used by the executives. Numerous ways of exhibiting data have been developed by statisticians during recent years. The choice of the proper method and the adaptation of the data to this method is a problem of considerable magnitude. In the organization of a statistical department, a section should be established for the handling of such work.

Analysis and Recommendations Based on Reports and Exhibits

After the reports and exhibits are prepared, they should be analyzed, and recommendations should be drafted. In some cases the reports are sent to the executives with brief explanatory comments and they are left to analyze them and judge the proper method of procedure. This plan does not insure the most effective use of reports. Executives have a tendency to glance hurriedly at reports which come to their desks and then turn them over to their secretaries for filing. If the reports are accompanied by a careful analysis and definite recommendations they are more likely to attract attention and secure action.

Some business firms have gone so far as to send to the executives only a few of the most important reports prepared by the statistical department. The others are displayed in the office of the department and executives come to the department to consult them. This plan makes it possible for the head of the department and his assistants to be on hand to explain reports and to answer questions. Sometimes the statistical department is equipped with a conference room where the executives may meet and discuss the reports. This plan promotes contact between executives, and tends to lead to a better understanding of each other's problems with a consequent closer co-operation. It can be used, however, only for the benefit of the executives in the general office. Reports must be sent to the executives in the other units of the organization.

Various Agencies Used in Statistical and Research Work

In addition to the service secured from its statistical department, a firm may use various outside agencies for statistical and research work. The most important of these are the following:

1. *Trade associations.*—A number of trade associations maintain research bureaus. These associations frequently publish bulletins and pamphlets containing much useful information.

2. *Advertising agencies.*—These agencies carry on investigations in the field of marketing, and make available much useful information for their clients.

3. *Public accounting and industrial engineering firms.*—These firms are sometimes equipped with a staff qualified to carry on research work. Their efforts are usually confined to the collection of internal data.

4. *Business research organizations.*—Some organizations do research and statistical work on a professional basis. They frequently undertake research in any field desired, but are usually better equipped to do work in special fields.

5. *Statistical organizations.*—Some organizations collect statistical data of certain kinds and distribute these by means of periodic reports. They sell their service on a yearly basis. In most cases they not only supply information but also analyze and interpret the data. Their services have been used mostly in securing data for forecasting the trend of the business cycle.

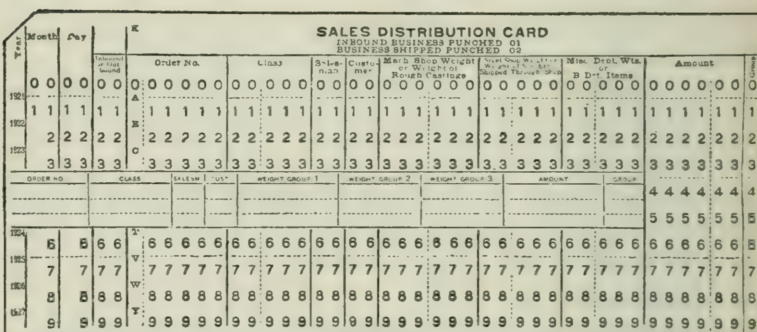
These agencies may be of service to firms which cannot economically maintain a statistical and research department. They may also be used beneficially to supplement the service rendered by the statistical department.

Relation of Statistical Department to Tabulating Work

When a statistical department is maintained, it is customary to transfer to it the tabulating work which may otherwise be performed by the tabulating section of the accounting department.

CHART VII

THE TABULATING CARD



ment. The nature of the work which can be performed by the use of tabulating equipment can be well indicated by a consideration of the four units of this equipment: (1) the tabulating card; (2) the key punch; (3) the sorter; and (4) the tabulator.

Tabulating card.—The tabulating card can be ruled to show a variety of information. A tabulating card ruled for use in making a classification of sales would contain columnar headings showing the different classes of information sought. Chart VII shows a possible ruling of a card used for this purpose. The method of showing the analysis within each category of information is explained in the discussion of the next topic.

The tabulating card must be of uniform size, but it can be ruled in a variety of ways so as to show the particular information desired.

The key punch, sorter, and tabulator.—The information desired on the tabulating card is recorded by placing the card in a key punch, and punching in each column the numbers which designate the information to be recorded. For example, it may be desired to show that the sale which is being recorded was made by James Brown, to whom has been assigned the number "21." In this case, "21" will be punched in the column headed "salesman." In like manner, appropriate numbers will be punched in each column. The information on the recorded cards can be obtained from invoices or any other appropriate voucher or record.

As the cards are punched, they are filed away. At the end of the period of time for which the data are being collected, the cards are run through a sorter. This machine sorts them according to one of the classifications shown by the columnar headings on the cards. For example, the machine may be set to sort the cards by salesmen. In this case, the cards will be assembled by salesmen. The cards which have been punched to show "21," the number of James Brown, will be in one group. The cards which have been punched to show "25," the number of Henry Jones, will be in another group, etc.

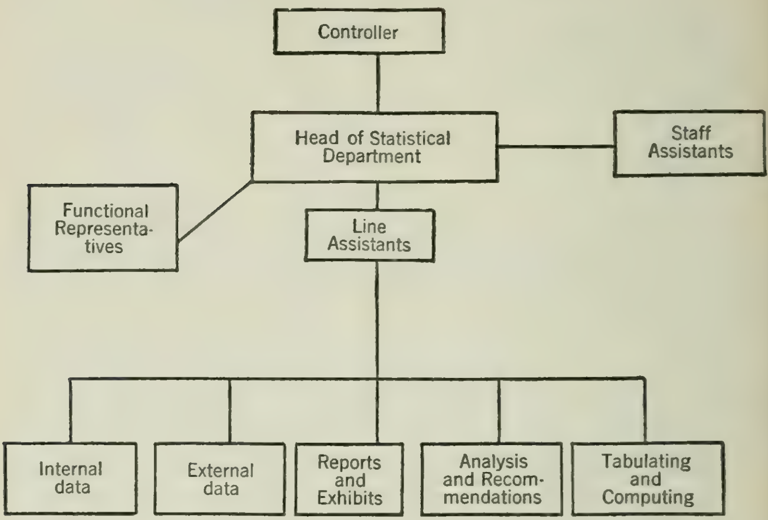
After the cards are sorted, they are run through the tabulator and the total of each group obtained. To illustrate, if they have been sorted by salesmen, they will be run through the tabulator to determine the sales of each salesman. In like manner they are sorted and tabulated for other classes of information shown by the columnar headings.

Illustration of Organization of Statistical Department

Based on the classification of activities given in the preceding discussion, a possible organization of a statistical department is as follows:

CHART VIII

ORGANIZATION OF STATISTICAL DEPARTMENT



QUESTIONS FOR CLASS DISCUSSION

1. Why do so few business firms have a statistical department? Why have accounting departments been developed more extensively than statistical departments?
2. "Accounting records do not explain many of the factors which cause the results shown by the records." Illustrate.
3. "The accounting and the statistical departments should have a mutual line of responsibility between them so far as basic data are concerned." What does this mean?
4. "Students of administration do not agree as to the extent to which statistical control should be centralized and the practices of business firms are equally divergent." How do you explain this situation?

5. What are the advantages of a centralized statistical department? Can you see any disadvantages? Can you suggest conditions under which a compromise between centralized and decentralized statistical control should be employed?
6. Give different ways in which responsibility may be fixed for statistical control. Give your opinion of each.
7. "It was a characteristic of the business man of yesterday that he recognized few problems." Why was this true? Would such a man make much use of statistical data?
8. "The modern ideal of an executive head of a business is a man who does little but these three things: (1) formulate policies; (2) pick men, and (3) study results." Does he have need of statistical data? If so, illustrate how he may use them in connection with each of the foregoing tasks.
9. "To gather statistics is not carrying on research. Consequently, the statistical department and the research department should be separate and distinct." Do you agree?
10. "If business facts are really to serve as basis for business judgments they should be homogeneous, representative, germane, stable, comparable, accurate." Illustrate each of these characteristics.
11. What is the distinction between internal data and external data?
12. "It is the function of the accounting department to provide internal data and the function of the statistical department to provide external data." Do you agree?
13. Give the principal divisions of the work of the statistical department. and explain the nature of each division.
14. Explain how the statistical department may secure each of the items of information given on page 99 under the discussion of "Collection and Analysis of External Data."
15. What advantages and what disadvantages do you see in having a central exhibit of statistical data to which executives come for information?
16. State possible analyses which may be made of the following by use of tabulating equipment: (1) purchases; (2) sales; (3) inventory; (4) expenses.
17. The M Corporation is a large mail-order house. It has forty factories which supply part of the goods it offers for sale. It has several branch merchandise houses which serve as distributing bases for the surrounding territory. State some of the most important statistical data the central statistical department of this business may collect, and the use to be made of it.

EXERCISE NO. 5

The King Manufacturing Company has its factory and general offices located at Chicago. It has ten sales branches located in large cities. Its sales amount to $20,000,000 a year. Its accounting department is organized with the following sections: (1) general-ledger section; (2) cost-accounting section; (3) accounts-receivable section; (4) accounts-payable section; (5) billing section; (6) pay-roll section; (7) branch accounting section; (8) tabulating section.

During the month of January, the following transactions, among others, were performed by the company:

1. Sales by branches, $1,800,000. Customers are invoiced by the branches, goods shipped from branch inventories, and collections made by the branches. The branches summarize the invoices on journal vouchers and forward them to the branch accounting section at the general office, where a separate ledger is maintained for each branch. There is a controlling account on the general office ledger for each branch ledger.

2. Collections on account by the branches, $1,450,000. Each branch has a working fund of $15,000, which is replenished by the general office. All collections are deposited by branches in a local bank to the credit of the general office.

3. Expenses paid by the branches from their working fund, $580,000.

4. Merchandise shipped from the factory to the branches, $1,600,000. All merchandise is billed to branches at cost.

5. Charged to branches by general office for interest on investment for the month, $18,000.

6. Sales made by the general office as shown by the invoices prepared by the billing section, $600,000. The billing section prepares invoices in triplicate. One is sent to customer, one to the tabulating section, and one to the accounts-receivable section.

7. Accounts receivable collected by the general office from its own sales, $800,000.

8. Charged to the branches by the general office for overhead expenses at the general office, $17,500.

9. General office expenses, $35,000. A voucher record is maintained by the company.

10. Machinery purchased by the general office for the factory, $20,000.

11. Additional automobile trucks purchased by the general office for the New York branch, $25,300.

12. Factory pay-roll for the month $300,000. The factory pay-roll is paid by the general office. A factory ledger is maintained by the cost-

accounting section and this is controlled by a factory-ledger account on the general ledger.

Required

Explain in writing how each of these transactions will be handled by the King Manufacturing Company, tracing the transaction from its origin until its effect is shown on the general ledger. In your explanation:

a) State what section of the accounting department will first have to deal with it.

b) State each section which will be affected by it, and the manner in which it will be affected.

c) State each ledger on which the transaction will be shown, and show in journal form the entry to be made on the ledger.

Each group of transactions, such as sales, purchases, etc., will be regarded as one transaction for the purpose of this problem.

REFERENCES FOR FURTHER STUDY

1. Brinton. *Graphic Methods of Presenting Facts*, chap. xvi.
2. Duncan, *Commercial Research*, chap. v.
3. Frederick, *Business Research and Statistics*, chaps. xi and xii.
4. Ignatius, "Relation of Statistics and Accounts in Industrial Management," *Industrial Management* (October, 1918), pp. 312–15.

CHAPTER VI

ORGANIZATION FOR BUDGETARY CONTROL

Need for Organization

To secure the maximum results from a system of budgetary control a comprehensive procedure for the preparation, correlation, and enforcement of the departmental budgets is necessary. To insure the carrying out of this procedure an organization should be made responsible for its enforcement. This organization should be effected before the budgetary program is initiated. Otherwise there will be no fixed responsibility for its enforcement, and delays and errors will occur. These tend to lessen the interest and enthusiasm in the budgetary program; this in turn renders its successful operation more difficult.

It is not possible to set up a standard organization for budgetary control applicable to all business firms. The discussion in this chapter is intended to indicate only the general characteristics of a sound organization.

Head of Budgetary Program

Since it is the purpose of budgetary control to assist in the correlation of the activities of all the departments, the budgetary program is as broad and comprehensive as the business itself. Since the budgetary program involves the activities of all the departments, it is not desirable to delegate its execution to any one department. To do so will lead almost inevitably to jealousy, misunderstandings, and friction. Rather an organization should be set up which (although including the executives of all the departments) has a head who is independent and superior to the departmental executives.

In harmony with this point of view, the president or general manager should have direct control of the budgetary program.

He must of necessity delegate to other executives and employees many of the duties thus imposed on him. He should, however, have final decision, subject to the approval of the board of directors, on all program matters including cases of disagreements between departments.

Disadvantages of Not Having Chief Executive as Head of Program

The importance of having the chief executive in direct and immediate control of the budgetary program cannot be overemphasized. Unless this is done undesirable results are likely to follow:

1. The chief executive will not maintain sufficient interest in the budgetary work and will not give it proper time and attention. Presumably he has a broader and better-balanced knowledge of the business than anyone else in the organization. Consequently he should be better qualified than anyone else in the organization to be head of the budgetary program. Moreover, his work in this capacity gives him an excellent opportunity to obtain first-hand information concerning the business as a whole and to judge the work of the several departments. A double benefit results, therefore, from this plan.

2. The departmental executives and their subordinates will not realize the full importance of the budgetary work and will not give it the necessary time and attention. If they are required to submit estimates and to report concerning operations at the request of some junior executive, or even to the head of another department, they are likely to regard the budgetary program as a routine matter of little significance. Each departmental executive is then likely to turn his budgetary work over to a subordinate. Soon it will degenerate into a clerical routine.

3. Disagreements will arise concerning the co-ordination of departmental programs. The sales department may desire to sell more than the production department thinks it can produce profitably; or the production department may wish to produce

articles which the sales department does not think it can sell; or both the sales and production departments may wish to increase their activities beyond the estimated ability of the financial department to finance. Obviously the only person who can decide these issues is the chief executive. These departmental executives will not accept as final the decision of an executive of equal or lower rank.

In the preparation of governmental budgets the tendency is to place final control and responsibility in the chief executive, although in some cities and states budgets are prepared by committees composed of heads of executive departments or of members of the legislative body. When the executive budget is used the chief executive is usually required to submit to the legislative body the proposed budget with his personal approval, and he is held responsible for its contents. The arguments for placing the executive head of a governmental unit as the head of the budgetary program apply with slight modification to the organization for budgetary control of a private enterprise.

The Budget Committee

The co-ordination of the departmental budgets into a well-balanced program for the business as a whole is a task of importance and complexity, requiring the whole-hearted co-operation of the executives of all the departments. This co-operation will be facilitated by the establishment of a budget committee, having, under the authority of the chief executive, general supervision of the budgetary program. This committee should be composed of the principal executives of the company with the chief executive as chairman. Its exact composition should depend on the organization of the business as a whole. In a manufacturing business having a functional organization, this committee may well be composed of the president, sales manager, production manager, treasurer, personnel manager, and controller. In a mercantile business, such as a department store, it may be composed of the president, merchandise manager, operating manager, treasurer, personnel manager, and controller. Others may in some cases be members, such as the purchasing agent, secretary, legal counsel, director of research, head of engineering department, or chairman of the board of directors. Care should be taken not to have the committee so large as to be unwieldy.

Under the authority and direction of the president, the budget committee considers all departmental estimates and makes such changes and revisions as may be desirable. No estimate is effective until it has received the approval of the budget committee. If the budget committee cannot agree, the question in dispute is left to the president and his decision is final. If the judgment of the president does not coincide with that of the majority of the committee, he may overrule them since he is the head of the budgetary program as well as head of the business. A wise executive would take such a step, however, only in extreme cases, for the success of the budgetary program depends largely upon the co-operation of the executives.

When considering the departmental estimates, the budget committee may call on departmental heads to explain the variations in their estimates from results for past periods, or, indeed, to explain any doubtful points. The committee thus obtains full information on the subject before making its decisions. The departmental *estimates* as approved by the budget committee become the working *budgets* for the departments, unless they are revised by the board of directors.

At the end of stated periods of time, preferably monthly, the committee receives reports comparing the actual performance for the period with the estimated performance. For example, it receives a comparison of the actual sales with the estimated sales; of the actual production with the estimated production; and of the actual expenses of each department with the estimated expenses. On the basis of these reports, it may make revisions in the budgets for the remainder of the budget period. The studying of such reports and the making of such revisions are a very important part of the committee's duties. It is of little value to make budgets unless a check is maintained on those responsible for their execution. Furthermore, budgets deal with future operations and are, therefore, likely to be inaccurate. It is necessary that these inaccuracies be discovered and corrected as quickly as possible. It is exceedingly unwise to follow plans blindly without taking into consideration changing conditions impossible to be foreseen when the plans were made.

The Budget Committee as a Co-ordinating and Advisory Board

The budget committee, in addition to supervising the budgetary program, may render useful service as a co-ordinating board and as an advisory body to the general manager. Students of administration are coming more and more to realize the interdependence of business activities. No department can carry on its activities without influencing the activities of other departments, and in turn being affected by their activities. Each department is, therefore, interested in the activities of every other department. The budget committee, composed as it is of the heads of the different departments, affords an opportunity for these executives to discuss their mutual problems. Each can secure the reaction of all the others, can obtain both their criticism and advice. Moreover, the executives learn to know each other, and to understand each other's point of view. This promotes cordiality and co-operation, which are among the first essentials of effective administration.

In a large business the president can seldom be sufficiently familiar with all the operations of the business to decide wisely all of its administration problems. It is very useful for him to have an advisory committee to which he can refer certain questions. In some firms there is organized for this purpose an "advisory" or "executive" committee. The budget committee can well serve as this advisory body to the president, since the problems which arise in connection with budgetary control are in many cases the same as those which should be considered by an advisory committee. In all cases the two classes of problems are closely interrelated.

Executive in Charge of Budgetary Procedure

Unless all the estimates and reports reach the committee at one time they cannot be considered properly for they are highly interdependent. If they are to reach the budget committee at the proper time, there must be a definite procedure for their preparation and submission. This means that after the budgetary procedure is established there must be an executive responsible for its execution. Although the president is the head of the budgetary program, he cannot assume responsibility for the detailed supervision of the budgetary procedure. He must delegate this duty to some other executive.

In a business having a controller, he should be charged with this responsibility. As head of the standards-and-records function, with joint control of accounting, statistics, and office management, he is in a particularly strategic position for the preparation and enforcement of such a procedure. In many business firms there is no controller. In others, there is an executive with this title, but in fact he acts only as head of the accounting department. In some firms where there is not a controller, the head of the accounting department is placed in charge of the budgetary procedure. This may be satisfactory if the accountant is sufficiently conversant with the operations of the business as a whole. In many cases, however, the accountant thinks only in terms of double entry records, and is quite incapable of administering such a task as is involved in establishing a budgetary procedure. If there is no controller, the supervision of the budgetary procedure may well be delegated to a member of the office staff of the general manager. This plan has the advantage that it centralizes the executive control of both the budgetary program and the budgetary procedure in one office. Of course, the title of the individual in charge of the budgetary procedure is not significant. The significant thing is his ability to grasp the problem and to secure the co-operation of the executives in its solution.

Duties of Executive in Charge of Budgetary Procedure

In the present discussion, it will be assumed that the controller under the authority and direction of the chief executive is the executive in charge of budgetary procedure. His duties in this connection are indicated by the following outline:

1. To receive from the departmental heads the periodic estimates.[1] In order that these estimates may be made in the proper form for his use he may design forms for the use of the departments.

2. To transmit these estimates to the budget committee with appropriate recommendations. He may combine and summarize these estimates so that they will reach the budget committee in the most useful form.

3. To supply the budget committee with the information necessary for proper consideration of the estimates, his assistants (in the statistical department if there is one) will collect and translate the data into reports and charts useful to both the budget committee and the department heads.

4. To receive from the budget committee the estimates as approved and to transmit these to the departmental heads.

5. To receive periodic reports prepared by the operating departments or by the accounting department, showing the performance of each department during the budget period.

6. To transmit these periodic reports to the budget committee showing a comparison between the estimated performance and

[1] The controller is responsible for the preparation of the estimates of the departments under his jurisdiction.

the actual performance for the period; and to make appropriate recommendations concerning revisions.

7. To transmit to the departmental heads any revisions in the original estimates which have been made by the budget committee.

8. To recommend to the president and to the budget committee needed changes in the budget procedure. He is also responsible for preparing the original procedure at the time the budgetary program is initiated.

The controller usually acts as secretary of the budget committee. In this capacity he is available for consultation with the members of the committee. He has the implied authority to do all things necessary to the proper performance of his expressed powers.

The controller should not be regarded as doing work of a clerical nature in connection with the budgetary procedure. His function is more than the supervision of the budgetary routine. Many questions of policy arise in the exercise of budgetary control. The departmental executives will often differ on these questions. The controller should study the issues and offer to the budget committee the matured judgment of an impartial observer.

Responsibility for Preparation of Estimates

Who should be responsible for the preparation of the various estimates? The practice of business firms varies widely. In some, the controller and his staff prepare the estimates and submit them to the departmental executives for revision or approval. This method may secure satisfactory results if the controller has a well-trained staff and if the fluctuations in the volume of business are so small that records of past results will serve satisfactorily to indicate future results. In most cases, however, these conditions do not exist and hence the controller's department is not equipped to prepare accurate estimates.

Even though the controller and his staff may be able to prepare accurate estimates, they should not do so. One of the important results of budgetary control is the benefit derived by the executives and employees in performing their part of the task. If the major part of the work is performed by a central agent, such as the controller, those who should benefit most from the budgetary program lose the opportunity to do so. In most firms having budgetary control, the executive head of each department prepares the *preliminary* estimate for his department. The sales manager is held responsible for the sales estimate; the production manager, for the production estimates; and so on. Practice varies widely with reference to the extent to which the senior executives delegate their responsibility for the preparation of estimates. Many firms believe in the centralized preparation of estimates. They have all estimates prepared in the general office, and then have them handed down to the subordinate units of the organization. Under such a plan, the sales manager prepares the sales estimate in his office (with the possible assistance of staff assistants). After it has been approved, he assigns quotas to divisions, branches, and salesmen. In a similar manner, the production manager prepares the production budget and then assigns production quotas to each factory under his supervision.

On the other hand, some firms believe in decentralized preparation of estimates. Under this plan, the sales manager asks his branch and division managers to prepare estimates of their sales. They in turn ask for estimates from their salesmen. The branch managers make revisions of the estimates of the salesmen and combine them into an estimate for the branch as a whole. The division managers treat the estimates of the branch managers in a similar manner in preparing the division estimates. The sales manager and his staff study the estimates submitted by the division managers and combine them into the sales estimate for the entire company. In a similar manner, the production and other estimates are made up.

Responsibility for Performance and Preparation of Estimates Should Be the Same

Although the majority of firms with budgetary control follow the plan of having the estimates prepared in the general office by the senior executives, it is becoming recognized that better results may be obtained if those responsible for carrying out the estimates are the ones responsible for originating them. This procedure is desirable for three reasons:

1. They should be best fitted to prepare the estimates for they are most intimately acquainted with the activities with which the estimates deal. The salesman in California should know more about the sales possibilities in his territory than the sales manager in the general office in Boston or New York.

2. They will obtain valuable training from the preparation of the estimates. The man on the job should be made to study his past operations and to think about his future operations. If the estimate is handed down to him, he may not do so.

3. They will feel more responsibility for their execution. One who has been consulted in the preparation of any plan and has assisted in its formulation must of necessity feel more responsibility for its fulfilment than he will when merely instructed to carry out a plan formulated by someone else. It is, of course, possible to enforce plans whether subordinates like them or not, but to do so as a general policy is destructive of morale, and morale is an important factor in present-day administration.

Departmental Committees

It is sometimes useful to have a committee responsible for the consideration of each departmental estimate. There may be a sales budget committee responsible for the consideration of the sales estimate before it is sent to the budget committee; a production budget committee responsible for similar consideration of production budget; a financial budget committee for considering financial budget, etc. Each of these committees will be composed of the head of the department, and one or more other executives who are interested in the same budget. The controller is usually ex officio member of each committee. To illustrate, the sales budget committee may be composed of the sales manager, assistant sales manager, production manager, advertising manager, and controller. The production budget committee may be composed of the production manager, production engineer, works superintendent, personnel manager, sales manager, and controller. These committees serve two useful purposes. They bring some of the junior executives in each department into consultation with the head of the department in considering the estimate of the department. They also assist in smoothing differences between the executives and thus decrease the work of the budget committee. They promote more informal and detailed discussion than does the budget committee.

Reports Used in Enforcing Budgets

Reports showing the actual performance of the various units of the organization should be prepared at frequent intervals in order that a comparison can be made between the actual and the estimated performance. Usually these comparisons are made monthly but comparisons for a shorter period are desirable when practicable. It is important that these reports be made promptly at the end of the period which they cover. Otherwise the comparisons based on them are of little value in controlling future operations. For example, if a comparison between actual and estimated sales is available in one or two days after the end of the month it may be of value in planning the sales for the following month but it has no value for this purpose if it is not available until the twenty-fifth of the month.

Most of the information shown on these reports will sooner or later be entered in the accounting records. Some duplication of work will usually be prevented, therefore, if the accounting department is made responsible for the preparation of these reports. In some cases, however, information can be secured "at the source" and reported much sooner than it can be obtained from the central accounting records. For example, a branch office may report its sales several days before the amount of these sales is shown in the formal accounting records of the home office. It is preferable, therefore, in some cases, to secure reports direct from the operating departments. These can be used prior to the receipt of the reports of the accounting department. The audited reports, prepared from the accounting records, may differ slightly from those prepared by the operating departments, but these differences are usually not of sufficient amount to affect the conclusions to be drawn from the latter.

Board of Directors

In many cases the budgets, as formulated and approved by the budget committee, are submitted to the board of directors. If they involve a radical change in policy or the addition of a large amount of capital, the directors may decide to modify them. The controller should have available data showing the possible modifications together with their effect on the program as a whole.

If modifications are necessary, the board of directors may instruct the chief executive to prepare budgets giving effect to certain changes. In this case, all the departments may be required to submit new estimates, or it may be that the changes are such that they can be made by the budget committee.

Although it is proper to have the budgets submitted to the board of directors for consideration and approval, they should be thus submitted only after they have been put into completed form. The directors are not interested in the details of preparation. In some cases the budgets are first considered by the executive committee of the board of directors and after approval by them are transmitted to the board as a whole. This provides for more careful consideration of estimates by the policy-making agency of the business. Undoubtedly the tendency for the board of directors to give consideration to the budgetary program will be increased in the years to come as it becomes a definite part of administrative procedure.

Manual of Budgetary Procedure

In most business firms the procedure involved in the preparation and execution of the departmental budgets is a comprehensive and complex one. It follows that the budgetary procedure should be very carefully worked out and reduced to written form, so that all executives and employees concerned may be fully cognizant of it. This can best be done by the preparation of a manual on budgetary procedure.

The contents of a manual on budgetary procedure will vary from business to business, but it will usually contain the following:

1. A statement of the organization for budgetary control. This section of the manual should state the various units of the organization and explain the duties of each unit in carrying out the budgetary program.

2. A statement of the procedure for the preparation and enforcement of each of the departmental budgets setting forth clearly the duty and responsibility of each unit of the organization with reference to the budget under consideration. This will include a statement of the reports to be prepared in the enforcement of the budget and the responsibility for the preparation of these.

3. A statement of the procedure for co-ordinating the departmental budgets and for preparing from them the financial budget and the estimated financial statements.

4. In a business where budgetary control is just being introduced it may be worth while to have the manual contain an introductory statement setting forth the purpose of the budgetary program and the advantages expected from its operation.

QUESTIONS FOR CLASS DISCUSSION

1. "The budgetary program is as broad and comprehensive as the business itself." Why is this true?
2. "Budgetary control is largely a matter of routine and therefore does not come within the province of the general manager." Do you agree?
3. Distinguish between *executive in charge of budgetary program* and *executive in charge of budgetary procedure.*
4. Discuss the relative advantages of having the following in charge of the budgetary procedure: (1) office manager; (2) chief accountant; (3) head of statistical department; (4) controller; (5) assistant to president.
5. "The authority for making appropriations is vested in the legislative body, therefore it is useless to talk of an executive budget." Do you agree?
6. What is the most important service performed by the budget committee?
7. What benefit is derived from having the personnel manager a member of the budget committee? Will he have any interest in considering the sales, production, and financial budgets?
8. Make a list of topics the budget committee might well consider when acting as an advisory body to the president.
9. Outline the duties of the executive in charge of budgetary procedure and explain the purpose of each of the tasks which you think he should perform.
10. "In the operations of the budgetary program many questions of policy arise." State some.
11. "One of the most important results of budgetary control is the benefit derived by the executives from its installation and operation." Illustrate how the executives derive a benefit from this source.
12. State the advantages and disadvantages arising from the centralization of responsibility for the preparation of estimates.
13. The reports of the X Company are uniformly late in reaching the executives. What remedies would you suggest?
14. What are the advantages of submitting the budgets to the board of directors for consideration and approval? Can you see any disadvantages?
15. State the object of a manual on budgetary procedure and outline what you think it should contain.

EXERCISE NO. 6

Prepare three reports outlining an appropriate organization for budgetary control for each of the following (see Exercise No. 1): (1) Meyer and Wilson; (2) The Meyer-Wilson Hardware Company; (3) The National Hardware Company.

State clearly the duties to be performed by each unit of the organization in the preparation and execution of the budgetary program. Be careful to take into consideration the organization recommended in Exercise No. 1. Keep in mind that the primary purpose of this exercise is to test your ability to apply the general principles discussed in this chapter to different situations.

REFERENCES FOR FURTHER STUDY

1. McKinsey, *Budgetary Control,* chaps. iv and xxiv.
2. Parsons, *Iron Age*, XCVIII, 1390–93.

CHAPTER VII

ORGANIZATION FOR OFFICE MANAGEMENT

The Office-Management Function

The term "office" is used loosely by both business executives and authors of business literature. The executive usually uses the term in the narrow sense to refer to the place where he performs, or directs the performance of the tasks for which he is responsible. In this sense, the general manager, the production manager, sales manager, and treasurer, will each refer to his "office." The professional man uses the term in a similar manner. Authors and executives also use the term in the broad sense to include the entire organization by which administrative activities are carried on. In this sense they refer to the "general offices," "division offices," and "branch offices." Some authors exclude from the office organization those engaged in the major administrative tasks and include only those responsible for the performance of more or less routine and clerical duties.[1]

The tasks performed by any division of a business depend necessarily on two things: (1) the total tasks to be performed in the business under consideration; and (2) the tasks which are assigned to other divisions of the business. This is particularly

[1] "Let us, therefore, understand at once that by 'office' we mean the clerical work that is a necessary adjunct to the operations of the five main divisions (administrative, production, selling, financial, accounting) of the business already described. This may mean that in some instances where all the office work can be performed in a small room in the corner of a big showroom, it necessarily is relegated to a position of unimportance; or it may be the all-important part of a business such as an insurance company, a bank, or a governmental department. Between the two extremes are the countless instances where the office plays that important role of all service-rendering institutions: it is the fifth wheel of the wagon."—J. William Schulze, *Office Administration*, p. 3.

true in the case of the office. If there are well-developed accounting and statistical departments, these departments will perform many of the tasks which would otherwise be considered office duties. The existence of such departments will be assumed in this discussion and the office-management function will be restricted to include only those clerical and routine duties which cannot be performed most efficiently by the accounting and statistical departments or by the operating departments.

Classification of Office Tasks

In a business with a well-developed functional organization, the office, under the control of the office manager, will usually assume responsibility for:

1. Receipt and disposition of incoming and outgoing mail
2. Supervision of telephone and telegraph service
3. Preparation of outgoing and interdepartmental communications
4. Filing of correspondence and related material
5. Selection, storage, and distribution of office supplies
6. Control of office equipment and layout
7. Operation of mechanical duplicating equipment
8. Direction of messenger and information service

In some firms the office manager is responsible for the selection and training of office employees. It is assumed in this discussion that this task will be performed by the personnel manager. In some firms this officer is responsible for the working out and establishment of office routines and procedures. We have assigned this task to the controller. The office manager as a subordinate of the controller may be required to assist in this work.

Receipt and Disposition of Mail

The tasks involved in the handling of incoming and outgoing mail are usually delegated to a section of the office division of the controller's department. This section is usually termed the mailing "department."

All incoming mail is first sorted to separate the personal mail from the company mail. The former is delivered unopened. The latter is opened and stamped to show to whom it is to go. In case of doubt who should receive pieces of mail, the office manager decides to whom they should be sent. All mail is delivered by messengers.

When the messengers deliver mail to the departments, they collect outgoing mail. They also collect interdepartmental communications. The outgoing mail will be prepared for mailing and delivered to the postal authorities. The interdepartmental communications will be sorted and delivered to the proper parties on the next round of the messengers.

Supervision of Telephone and Telegraph

In a business which has several offices, each of which must have telephone facilities, it is necessary to instal a company switchboard. This board will handle all incoming, outgoing, and interdepartmental telephone messages. The management of this board is under the jurisdiction of the office manager.

The office manager's department will also handle all incoming and outgoing telegrams. The incoming telegrams will be received at the information desk and dispatched by messenger to the proper party. Messengers will call for all outgoing telegrams in response to summons and will either deliver these to the telegraph company or to the switchboard, for transmission to the telegraph company. A record may be kept by the switchboard operator of all telegrams and long-distance telephone calls, and a report made monthly to the controller showing the cost of this service by departments. This is useful in effecting proper control of the expense budgets.

Preparation of Outgoing and Interdepartmental Communications

Business firms differ widely in the extent to which they centralize the responsibility for the preparation of outgoing and interdepartmental communications. In some cases, each employee regularly responsible for the preparation of such communications has his personal stenographer. The employees who only occasionally prepare communications will use stenographers detailed for such service. This represents the extreme of decentralization.

On the other hand, none of the executives or employees may have personal stenographers. A central stenographic service provides a stenographer on request. A further development of this plan is the use of dictating machines. The executives and employees dictate to these machines whenever they desire. The records are collected at regular intervals and taken to a central typewriting department where the transcription is made. The transcribed material is then returned to the dictator who inspects and signs it. It is then collected by the mail messengers and distributed in the manner previously explained. In some firms there are correspondents who devote their entire time to replying to letters, and who dictate all letters except those of a personal or highly technical nature. This relieves executives and others of work which otherwise takes a considerable portion of their time. These plans represent the extreme of centralization.

Between these two extremes there are many gradations. In many firms, the principal executives have secretaries who do their stenographic work in addition to the performance of other tasks, while the junior executives and employees use the services of a central stenographic department, or employ machines. In most businesses it is also desirable to use some correspondents who handle the routine correspondence. It is unnecessarily expensive to have high-salaried executives devoting their time to answering inquiries, complaints, etc., which can be handled just as well by a medium-priced employee. In some cases, too, the use of correspondents will lead to the preparation of better letters. Investment-banking houses have found it desirable to have correspondents not only to relieve salesmen so they can spend more of their time in direct selling, but also because correspondents can be selected who write better letters than do the typical salesmen.

At the present stage of development in office administration, no arbitrary rule can be stated concerning the proper degree of centralization. The best plan for any given business can be determined only after a consideration of the nature of its operations and the character of its personnel. In most firms where the office function is developed to any considerable extent, it is expedient to have some centralization of this work. In all cases the office manager should have functional control of this activity in all departments.

Filing of Correspondence and Other Material

In most firms the correspondence and other material appropriate for filing soon reaches such proportions that it is not feasible to have separate files for each office, executive, or employee. Both efficiency and economy are promoted by the use of a centralized filing service. As soon as the recipient of any correspondence or other material has completed his present use of it, it is sent to the files. If it is desired later, a memorandum is sent to the filing department requesting it. The filing department supplies the desired material and files the memorandum in a tickler file. When the material is returned, the memorandum is taken from the file. If it is not returned within a reasonable time the memorandum brings this fact to the attention of the filing clerk. This procedure keeps a check on all material taken from the files and prevents its loss or misplacement.

The filing department should be located near the offices of those who make most frequent use of it, or some mechanical means should be employed to transfer material so that there will not be too great delay. If an executive has frequent need of specific material he may keep this in a private file.

Selection, Storage, and Distribution of Office Supplies

The modern tendency is to standardize office supplies as far as possible. This leads to economy both in the purchasing and in the use of supplies. To secure standardization there should be centralized control. This can usually be best secured by placing the responsibility for selecting such supplies with the office manager. He will, of course, co-operate with the employees of the various departments in determining what should be secured. After the supplies are selected, their purchase will be made by the purchasing agent. The quantity to be purchased should be governed by the establishment of maximum and minimum, and quantities to order enforced through perpetual inventory records, as explained in chapter xxvii.

If supplies are to be used economically, they should be placed in a central storeroom and issued only upon the request of department heads. The quantity each department is permitted to requisition at one time, or within a definite period of time, can be established, and the storekeeper can see that these standards are not exceeded. Requisitions for supplies may be sent through the controller's department, so they may be checked against budget appropriations. This plan brings about an effective control which is not possible when each department has the custody of its supplies. If each department keeps its own supplies, almost invariably inadequate attention will be given to their care, and excessive quantities will be used.

Control of Office Equipment and Layout

Whenever possible, it is desirable to use standard equipment in all departments of a business. Such standardization is especially desirable for furniture, fixtures, and other office furnishings. To that end, business firms frequently select a standard type of desk, standard typewriters, and standard calculating machines to be used in all offices. There are several advantages in having standardized equipment.

1. By buying all equipment from one company, it may be possible to obtain more favorable terms.

2. It facilitates the purchasing of new equipment, since a requisition can be made for one unit of equipment and sent to the general purchasing agent who knows what to purchase, from whom to purchase, and the cost. This eliminates the preparation of specifications for the use of the purchasing agent, and relieves him of the task of obtaining quotations on special types of equipment.

3. It facilitates the production of such equipment as the company produces for its use, since standard specifications can be prepared and the necessary materials and tools be procured in advance. It also facilitates the making of repairs. Parts can be kept on hand, and mechanics will become more skilled in making repairs. This is more significant for factory equipment than for office equipment, but it has considerable importance in both cases.

4. It facilitates future planning. It is only necessary to estimate the number of units required, and the cost can be easily obtained.

5. It tends to promote the most economical use of equipment. Equipment can be moved from one office or department to another, thus preventing a probable surplus in one, and a shortage in another.

6. In case of equipment which requires technical skill to operate, it facilitates the transfer of employees from one department to another.

To secure the adoption and continued use of standardized equipment, it is necessary to have a centralized control of all equipment purchases. A customary procedure is to have all requisitions for the purchase of equipment referred to the office manager for approval. They are then sent to the purchasing agent who makes the purchase.

The various units of the office organization should be in proper relation to each other. The equipment within each unit should be arranged in the proper order. Offices which have frequent relations with each other should be located near each other. The equipment within the offices should be arranged in such order that each employee will receive the maximum amount of light and ventilation possible. It is the function of the office manager to work out a proper layout for all offices and all equipment within the offices.

Operation of Mechanical Duplicating Equipment

In the preparation of communications, especially those of an interdepartmental nature, many copies are often required. These can be most economically prepared by the use of duplicating equipment. All work of this nature should be centralized in one department under the control of the office manager. Of course, different units of the organization may need such equipment.

Direction of Messenger and Information Service

Messengers are needed in the performance of the mail service and in the performance of errands for the executives. The messenger service should be under the control of a supervisor who should report to the office manager. The office manager also has under his supervision the doorman and information service.

Different Methods of Fixing Responsibility for the Office-Management Function

Firms differ widely in their method of fixing responsibility for the office-management function. Many do not recognize it as a distinct function. We have assumed its recognition, and have assumed that the controller is in charge, but only the minority of firms have such an organization. Many who do have a controller do not give him the powers sketched in this book. Many others do not recognize a clear line of demarcation between accounting, statistics, and office management. These are undoubtedly closely related. It is primarily because of this relationship that all of these are placed under the jurisdiction of the controller. In most firms, however, the activities falling within each group are of sufficient importance to make expedient the setting up of a separate section in the controller's department for their administration.

In the firms having no one with the title of office manager, one of two situations is likely to prevail. (1) The head of the accounting department may be responsible for the office work, which is likely to lead to a neglect of the office-management function; (2) there will be no centralized control of the office work, and each department will carry on its office work. This latter plan is subject to all the objections stated in previous chapters against decentralization of accounting and statistical control.

The best practice is to have an office manager in line control of the activities performed by employees who report to him, and with functional control of the activities performed by employees under the line control of other executives. The employees who should be under his line control are indicated by the chart of organization at the end of this chapter.

Relation of Office Manager to Other Executives

The office manager will come in contact with all the departmental executives. Like all executives who exercise functional control, he must work in close co-operation with the line executives if he is to secure satisfactory results. This is, indeed, particularly true in his case since he deals with matters so intimately connected with the activities of the line executives. Much can be done to promote harmony if the office manager consults the line executives with reference to all contemplated actions which may affect them and attempts to iron out any differences of opinion by means of conferences. Irreconcilable differences should be left to the general manager for decision.

The office manager of course reports through the controller to the general manager.

The office manager, the chief accountant, and the head of the statistical department need to work very closely together. Duplication and lack of co-ordination will develop if they do not co-operate. The fact that all report to the controller will facilitate their co-operation. The controller, in the light of all the circumstances, can decide to which department specific tasks should be assigned and see that the contemplated activities of each department co-ordinates with the activities of the other departments if there are points of contact.

Control of Office Routine

Office work involves the performance of a large number of routine tasks. If these tasks are to be performed promptly and efficiently, two things are necessary. (1) Definite and comprehensive procedures must be established for their performance, and these procedures must be subject to "periodic overhauls" to test their validity and to see if they can be improved. (2) Effective measures must be taken to see that these procedures are carried out day by day.

Standard procedures for the performance of all business activities ought to be established if there is sufficient repetition to justify them. The need of such procedures in the repetitive routine of office work should be apparent. It should also be apparent that a procedure which is satisfactory when adopted may become unsatisfactory due to changing conditions. Established procedure should, therefore, be critically examined from time to time to see if profitable changes may be made.

After a procedure has been established, it should be under definite and continuous control to see that it is properly carried out. The office manager should have coming to him constantly reports which will enable him to judge how well the procedures are being carried out, and how effectively they are working.

Office Manual

The procedure for the performance of office work in a typical office is both comprehensive and complex. There should accordingly be an office manual giving detailed instructions concerning this procedure.

The office manual or textbook is a pamphlet—or rather a series of pamphlets—in which appears in printed or typewritten form standing information of a general and specific character with which it is desired that an office employee becomes familiar. It serves two functions: first, it is a process of training, as indicated in the previous chapter; second, it recognises the put-it-in-writing principle, so that an employee, instead of obtaining his information orally and, frequently, incorrectly has it in official form prepared by the management, and can refer to it from time to time to refresh his memory. Nor can he evade the responsibility of knowing intimately what he finds written there. To put it in another way, the office manual serves the same purpose for the office that the army manuals, drill books, and army orders serve for the army.[1]

The contents of the office manual will depend to a considerable extent on what other manuals are prepared and what they contain. It is usually desirable that it contain three distinct divisions:

1. A statement of the general rules and procedures governing office work in all departments.

2. A statement of the rules and procedures which govern the office work in each department.

3. A statement of "desk" rules which gives the instructions for work at individual desks in each department.

Sometimes the manual contains a statement of the history and general policies of the business, but these are more frequently issued as a separate manual.

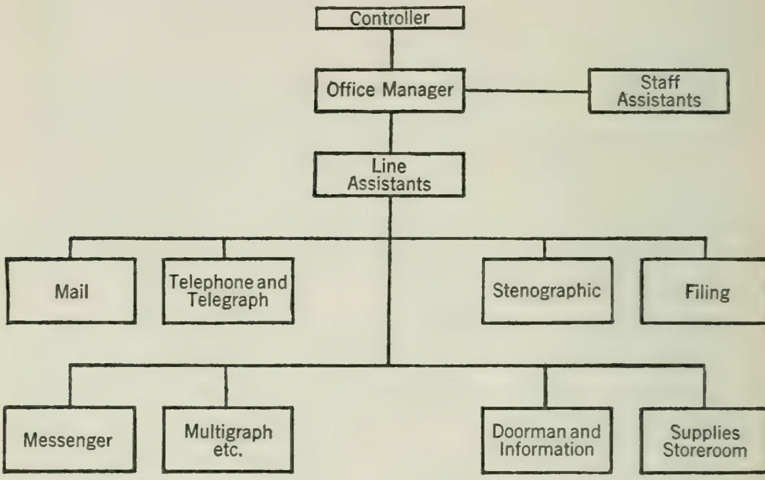
Organization of Office Manager's Department

The office manager, like the chief accountant and the head of the statistical department, may have both line and staff

[1] Schulze, *Office Administration.*

assistants. He may also have functional representatives if his tasks in connection with the several departments are of sufficient complexity. Based on the classification of activities given in the preceding discussion, a possible organization of the office manager's department is as shown in Chart IX.

CHART IX



QUESTIONS FOR CLASS DISCUSSION

1. "The term 'office' is used loosely by both business executives and authors of business literature." Why is this true?
2. "If there are well developed accounting and statistical departments such as are outlined in the preceding chapters they will assume many of the tasks which would otherwise be considered office duties." Suggest some of these duties.
3. Give illustrations of interdepartmental communications.
4. Outline a procedure for the handling of telegrams and long-distance telephone messages so as to restrict them to a minimum, and also to keep them within the limits of the expense budgets.
5. "Business firms differ widely with reference to the extent to which they centralize the responsibility for the preparation of outgoing and inter-

departmental communications." What reasons can you give for this divergence in practice?

6. What arguments can you give for and against such centralization?
7. What are the advantages and disadvantages of employing correspondents?
8. "In all cases, the office manager should have functional control of the preparation of outgoing and interdepartmental communications in all departments." Give illustrations of the exercise of this functional control.
9. "Both efficiency and economy are promoted by the use of a centralized filing service." Why?
10. Explain the procedure for the operation of such a service.
11. "The standardization of office supplies leads to economy both in the purchase and use of supplies." Why?
12. "To secure standardization, it is necessary to have centralized control." Why?
13. Explain the procedure for operating a central storeroom for supplies.
14. State the advantages of standardized equipment. Can you give any disadvantages?
15. "Many business firms do not recognise office management as a distinct function." How do you explain this situation?
16. "The office manager has to deal with matters which are intimately connected with the activities of the line executives." Explain.
17. "The work of the office manager and that of the chief accountant and chief statistician are very closely related." Illustrate.
18. What advantages are derived from having the office manager report to the controller? Do you see any disadvantages? What other form of organization can you suggest?

EXERCISE NO. 7

The following questions were considered by the executives of The National Hardware Company (see Exercise No. 1) during the month of December:

1. Should notes to banks falling due on December 25 be paid or renewed? Cash is available for their payment, but if it is used for this purpose new loans must be contracted immediately after January 1.

2. Should an increase in wages which is demanded by representatives of the union be granted?

3. Should new lines of products which are offered to the trade by competitors be produced by this company?

4. Should prices of products be reduced to meet prices of competitors?

5. Should vacations of employees be distributed throughout the year so the working force will be less disrupted by them?

6. Should the classification of accounts be enlarged so a more detailed analysis of expense can be made?

7. Should a bank account be opened in an additional bank?

8. Should additional equipment be purchased for the factory?

9. Should a picnic for employees be held during the summer months?

10. Should smaller balances be maintained in depositories?

11. Should materials in excess of current needs be purchased in anticipation of rising prices?

12. Should a lunchroom be installed for employees?

13. Should the method of handling cash receipts be charged?

14. Are the freight rates paid on raw materials purchased excessive?

15. Should the size of the territory assigned salesmen be changed?

16. Should advertising be placed in national periodicals?

17. Should the materials be purchased on different terms?

18. Should the method of classifying sales in records be changed?

19. Should methods of processing certain products be changed?

20. Should a patent be secured on a machine developed by an employee?

Required

1. The president of the company discusses each of these questions with the appropriate executive or executives. State the executive or executives with whom he should discuss each of these questions and give a reason for your answer in each case.

REFERENCES FOR FURTHER STUDY

1. Gerstenberg, *Principles of Business*, chap. xii.
2. Schulze, *Office Administration*.
3. Sparling, *Business Organization*, chap. vi.
4. Diemer, *Factory Organization and Administration*, chap. x.

PART III

ADMINISTRATIVE REPORTS

CHAPTER VIII

CHARACTERISTIC FEATURES OF ADMINISTRATIVE REPORTS

Need of Presentation of Business Data

The work of the business administrator is largely a matter of control—control and direction of business activities. Intelligent control must be based upon accurate and comprehensive information. Information for use in business administration is most serviceable when it is presented in a summarized and classified form by means of properly designed reports. We usually think of reports in connection with the general officers for the reports which they receive are of a formal nature. However, all employees except those engaged in routine tasks are receiving or transmitting reports daily. These reports may come to them as business forms on which they perform certain tasks and then transmit them to others. They are nevertheless reports in the sense in which that term is used in this discussion.

Purpose of Reports

Reports present information which is used in formulating and executing business policies. More concretely, they present data which serve (1) as a basis of formulating plans of operation for the various functional departments and the co-ordination of these plans into a balanced program for the business as a whole; (2) as a basis of executing the plans which have been adopted and judging the results secured under these plans.

Looking at the problem from another point of view, the business executive may desire reports: (1) That he may obtain from them information which he can use in guiding his own actions. (2) That he may use them to influence the actions of others. The use to be made of a report will materially affect its form and content. It is apparent that reports for the use of stockholders would not need to be as detailed as those presented to the board of directors. The directors in turn will need less detail than the officers of the company, and the latter will need less than the junior executives. The junior executives will have more detail with reference to particular operations than will the senior executives, but the latter will have information with reference to more operations than will the former. The president will receive the least detail of any, but will receive information concerning more subjects than will any of the rest.

Classification of Administrative Reports

The reports used in administrative control may be classified broadly into the following groups:

1. Reports showing present financial condition. The standard form of balance sheet with its various subsidiary schedules is used for this purpose. This is the oldest and most used of administrative reports. It will always continue to be of great significance in administrative control, though it may be questioned if its importance has not been overemphasized at the expense of other reports of equal value.

2. Reports showing the results of past operations in terms of expense and income. The various forms of income and expense analyses and the standard form of statement of income and expense, with subsidiary schedules, are used for this purpose. Next to the balance sheet, these are the reports most widely used. For internal control they are used even more widely than the balance sheet.

3. Reports showing information necessary for the daily actions of executives and employees. These reports may consist of a statement for the treasurer, showing the accounts payable falling due on a current day; of a report to the collection manager, showing accounts thirty, sixty, and ninety days past due; of

a report to the sales manager, showing the slow-moving items of stock; and hundreds of other reports of a similar nature. These reports are not so widely discussed in business literature as are the standard financial statements mentioned above, yet they serve a vital function in the internal administration of a business.

4. Reports showing anticipated results of future operations. These reports include estimates of sales, estimates of purchases, estimates of production, estimates of financial condition, estimates of income, expense and net profit, and similar reports. Although these reports are not prepared in a formal manner by the majority of business firms, a considerable part of the subject-matter of this book is based on the assumption that their ultimate general use is inevitable. Under this heading may be placed the reports presenting information to be used as the basis of establishing standards in all departments of the business.

5. Reports showing a comparison between the actual performance and the estimated or standard performance. Such reports make possible the enforcement of budgets and provide data to use in revising the budgets when this is found necessary. Under this heading may be included all the reports which serve as a means for the enforcement of departmental standards.

6. Reports which provide data with reference to conditions external to the business but which affect its plans and policies. These reports are usually of a statistical nature and present data helpful in making the departmental budgets as well as in determining policies for the business as a whole. Many of these are prepared from data collected and analyzed by agencies outside of the business itself.

Form of Administrative Reports

The form of administrative reports is quite important. As Brinton very aptly says: "Ordinarily facts do not speak for themselves. When they do speak for themselves, the wrong conclusions are often drawn from them. Unless the facts are presented in a clear and interesting manner, they are about as effective as the phonograph record with the phonograph missing."[1]

A consideration of the form of administrative reports resolves itself largely into a consideration of the devices which may be used in presenting business data. Among such devices are: (1) written statements; (2) statistical tables; (3) business forms; (4) geometric figures and charts; (5) maps and pictures.

Written statements.—Many of the reports which are used by business executives consist merely of written statements submitted by subordinates, or by staff units. For example, the sales manager may desire a weekly or monthly report from each of his division managers, setting forth the trade outlook of his territory. This report may take the form of a letter in which the division manager discusses in an informal manner the market conditions and the conclusions which he draws from the data at hand. There may be included in the letter some statistical data which backs up the conclusions drawn. The sales manager may indicate the general points to be covered in the letter, but it has been the experience of many sales executives that better results are obtained if the division manager is left free to present his subject-matter as he thinks best. In other words it is better to ask him to write a letter than to fill in a printed form. If he uses a form, he may regard the report as a perfunctory matter, and may even assign the task to a clerical assistant. If he is required to write a letter addressed to the sales manager, the personal element enters and he will give more time and thought to its content.

The chief executive may often request reports from subordinates giving their views on certain topics. The diplomatic executive can use this method as a means of building up a spirit of loyalty and co-operation. If these reports are prepared in an informal and personal manner, better results can usually be

[1] *Graphic Methods of Presenting Facts*, p. 2.

obtained. Many of the reports of the president to the directors can well be submitted in the form of informal statements. As previously explained the departmental executives co-operate continuously in the performance of their tasks. To effect this co-operation, numerous communications between them are necessary. These are in most cases informal memoranda.

The primary essentials of the foregoing type of reports are that they be logically organized and expressed in clear and concise language. One of the chief deficiencies of reports of this kind is their lack of a logical organization. The necessity for conciseness should be apparent when one considers the numerous reports to which each executive must give his attention, and the waste of time involved in reading and interpreting unnecessary or irrelevant material. Clearness is necessary to a proper understanding, and understanding is a prerequisite to intelligent action.

Statistical tables.—One of the most familiar methods of presenting data is by means of tables. There are various methods of tabulation but most of them are relatively simple. One without previous statistical training can usually interpret such reports without difficulty, if they are properly prepared. The method of constructing a table, therefore, is quite important.

A fundamental principle in the construction of a table is that each table should be a unit. This means simply that there should be unity of purpose behind the table which is made. It is not enough, however, to have mere unity of purpose. Even though this is secured, it may not be possible for all material to be presented in a single table. One of the first questions to ask is, "Can the facts be shown in one table?" The rule which should guide in answering this question is that no table should be so large or so complex as to be confusing. If a table is hard to follow, it loses much in clearness and effectiveness. On the other hand, it may be said that if the material can be put in a single table, it is then all brought together so that it is not difficult to make the desired comparisons. It must finally be left to the individual judgment to determine whether one or more tables should be used to carry the material.

A table may show either figures or percentages or both. Here, again, the nature of the investigation would very largely determine what the character of the material should be. It is wise advice, however, to say that if percentages appear in the table, the figures should be near at hand for checking them up. A good general rule is that every kind of chart should have at hand the means of correcting or checking any part of it or the final results. It is clear that a table which carries both the figures and the percentages will be able to show much more than a table carrying only one or the other.

In the construction of a table there are several points to keep in mind. One of the first questions asked is, "What form shall the table take?" Again the answer would have to be indirect. It will depend very largely upon the kind of material and the purpose in view. Obviously, however, if a table is to show comparisons, which is usually the case, the facts which are to be compared should be brought as close together as possible. If the data are in columns, then the columns should be near enough to each other so that a ready comparison can be made. If the totals or the averages or the percentages are the important thing, then these should be in such a position as to make comparisons easy.

It is clear that a table can be constructed only after a part of the analysis has been made. In fact, the making of a table is a part of the analysis. In connection with this analysis there arises a question of the number of columns to be used, the headings to be given to each, and the title which the table itself is to carry. Common sense will dictate in most cases the best usage. Some simple principles, however, may be stated for the purpose of guidance. If it is desired to carry the analysis of data into minor details, then the number of columns will increase and the number of headings likewise. Of course the more minute the details of analysis, the more nearly should one approach absolute accuracy. The word of warning which should be given is that confusion must be avoided. In a case of this kind there will be need of main headings and sub-headings, each of which should express compactly and clearly the principle illustrated by the facts. In general the title of the table and the headings of the columns should in every case contain the unit which has been used in analysis and should be complete and self-explanatory. It is desirable, also, in constructing a table to omit as many digits as possible and still maintain reasonable accuracy. If carried too far the figures will be cumbersome and confusing.[1]

This lengthy quotation has been given because the suggestions made in it are applicable in the main to all other forms of reports.

[1] C. S. Duncan, *Commercial Research*, pp. 260–61.

The customary financial reports such as the balance sheet and the statement of income and expense are in effect statistical tables and fall within the present discussion. So also do the various reports which set forth departmental activities.

Business forms.—In the carrying on of interdepartmental activities, numerous forms pass from one department to another. These forms are in essence reports, since they convey to each department to which they go information needed by it in carrying on its operations. For example, when a sales order is received, it is usually copied upon a company form and copies of this form sent to several different units of the organization. One copy may be sent to the stockroom; this notifies it to deliver the required goods to the shipping department. One may go to the shipping department, to instruct it with reference to shipment of goods. Another may go to the balance of stores section, so that it may make proper entries on its records. Still another copy may be sent to the customer, to notify him that his order has been received and booked for shipment. A final copy is retained by the unit responsible for seeing that the goods are properly shipped, and is used by it as a "follow-up." We are not interested at present in the procedure by which these forms are used, but only in seeing that they serve as reports for the transfer of information from one department to another.

If the company has branch sales offices or factories located separately from the general office, these branches and factories must make frequent reports to the general office. Many of these reports are of a routine nature and can be most conveniently made on uniform printed forms. These forms facilitate making the reports and also facilitate the use of the information contained in the reports. Since they are uniform in construction and nature of contents, it is easy to compare the results of the different units or to combine all the reports and obtain the results of the operations of the company as a whole.

Geometric figures and charts.—Geometric figures are used extensively in the presentation of business data. The most frequently used of these are lines and curves. Such devices are generally known as graphs or charts. Other geometric figures which may be used effectively in some cases are the rectangle, square, circle, parallel bars, cylinder, pyramid, and cone. There is no limit to the kinds of figures which may be employed other than the skill and imagination of the one responsible for the preparation of reports. The figure to be used should be considered very carefully before it is employed. Sometimes the nature of the material is such that it will not adapt itself readily to the type of figure desired. Figures, if not properly used, create wrong impressions and lead to erroneous conclusions.

One important use of graphs or charts is in presenting the organization of a business with particular reference to the lines of authority between the various units of the organization. These are usually termed "organization charts." Illustrations of such charts are shown in the charts of organization given in previous chapters.

Organization charts are very useful in giving executives and employees a picture of the business as a whole. Often they point out inconsistencies in the organization which have developed more or less accidentally during the period of growth and have not been brought forcibly to the attention of the chief executive and board of directors. Moreover, such a chart is very useful to new members of the organization, since it enables them to see readily the business as a unit. Organization charts are especially useful in showing lines of authority and indicating thereby some of the avenues of promotion.

Charts may also be used for other purposes, such as to show the methods of distributing the product of a firm, the distribution of its advertising, and the sources of its supply of materials.

Maps and pictures.—Maps are often used to advantage in the presentation of business data. They are well adapted for use in showing information which relates to different territories. For example, the location of trade centers, the distribution of population, or the distribution of sales can be effectively shown by such means. Sometimes they are employed in the routing of salesmen and in the establishment of traffic routes.

Pictures may often be used effectively, especially in the presentation of technical data difficult for the reader to understand. They are also used when it is desired to appeal to the imagination as in the prospectus of a new company which is selling its stock direct.

Requisites for Satisfactory Reports

The form and content of administrative reports must be conditioned by circumstances, but there are certain requisites, which have general application.

1. They should be sufficiently simple to be easily understood by those for whose use they are intended. Business men do not have a natural liking for the use of reports. In fact with many executives the opposite is true. If reports are too complicated, there is danger that they will not be studied as they should be. If one attempts to crowd too much on a report, there is danger that he will secure proper action on none of its contents.

2. They should be sufficiently comprehensive to present a complete picture or tell a complete story. In other words a report should not state a half-truth. If the information is not complete, there is apt to be misunderstanding and the formation of incorrect judgments. To make a report comprehensive does not mean that it needs to be complex. Care should be taken not to attempt to show too many things on a report but to show full information with reference to the one or more things shown. But to show full information does not require necessarily the

showing of details. As will be emphasized in the subsequent discussion, details are usually confusing to executives. Information can be comprehensive even though summarized data are shown. The details must of course be available to support the summaries when required.

3. They should be properly organized so that the subject-matter will appear in logical order. The designer of reports should imagine himself in the position of the recipient of the report and ask himself the questions which the latter would logically ask. The report should then be designed so that its subject-matter will appear in the same sequence as the foregoing questions would appear if arranged in the order in which they would logically be asked. The effectiveness of a report can be increased also by inserting proper headings and sub-headings so as to show the information of major and minor significance and the relation between its various parts.

4. They should be arranged so that the subsidiary reports containing details can be easily tied into the major reports containing summarized data. This can often be accomplished by having the totals which appear on the detailed reports comprise the individual items which appear on the condensed reports. For example, the manager of branch houses may desire a report from each of the twenty branches of the company showing the sales of each classified by products. The president may desire a condensed statement of the sales of the company as a whole classified by branches. In this case the totals shown on the individual branch reports can be copied directly on to the report for the president. This plan is capable of extensive use and facilitates not only the preparation of the reports, but also the interpretation of the condensed reports, if it is necessary to seek detailed information to explain variations shown on them.

5. They should show comparisons with standards. Information is of little value unless there be some standard serving as a

basis for its interpretation. Standards should be shown on the reports, so that comparisons with them can be easily made.

6. They should show tendencies. Business conditions are constantly changing and these changes result in an effect on the financial condition and earning capacity of a firm. It is desirable, therefore, to know the tendency of the changes taking place, so that unfavorable changes may be checked and favorable changes encouraged.

7. They should be stated in comparable terms. Comparisons are of value only when the quantities to be compared are commensurable. If this is not done, very erroneous conclusions are apt to be drawn. This result has often happened during the past because of the prevalent practice of stating reports in financial terms. Since the purchasing value of the dollar is constantly changing, comparisons stated in terms of dollars and cents are apt to be misleading. For example, during the years 1917–20 the comparative statement of income and expense of most firms showed a considerable increase in the volume of sales. In most cases an actual increase in the volume of sales had taken place, but it was not as large as the statements of income and expense indicated. The sales price had been rapidly increasing and a considerable part of the supposed increase in sales was due to this fact. A more useful comparison during these years would have been between the number of units sold. Many reports may be better stated in terms of physical units rather than in terms of financial units.

8. They should be constructed so as to reflect the organization of the business. Responsibility must be delegated in the present-day type of business organization and information must be made available for holding accountable those to whom responsibility has been delegated. To accomplish this, reports must present information in such form that it will be possible to enforce accountability. This requisite of reports will be emphasized throughout the subsequent chapters.

Balance Sheet and Statement of Income and Expense

The discussion in chapters x to xiv inclusive will be confined to a consideration of the standard form of balance sheet and statement of income and expense. These are the administrative reports in most general use which cover the activities of all the departments. Other administrative reports, of which there are legion, will be considered in connection with the discussion of the control of the activities to which they relate. For example, sales reports will be considered under sales control, production reports under production control, etc. This plan will facilitate an understanding of the relation between administrative reports and administrative activities.

It is not intended to overemphasize the comparative importance of the balance sheet and the statement of income and expense by the prominence given to their discussion. It is especially important that the student realize the significance of the departmental reports discussed in the subsequent chapters.

QUESTIONS FOR CLASS DISCUSSION

1. Explain and illustrate the relationship between standards and reports.
2. Brown contends that the establishment of standards should precede the establishment of reports because the standards are necessary to the interpretation of the reports. Smith contends that the reports should come first, because the information contained on the reports is necessary to the establishment of the standards. What about it?
3. Mr. Hardy Jones, a foreman in a machine shop, asserts that reports are all right for the officers of the company, but that he is not interested in them for he does not need to use them. What is your opinion? Suppose the same argument is advanced by a clerk in the accounts-receivable section of the accounting department.
4. "The business executive may desire reports that he may use to influence the actions of others." Give illustrations of the use of reports for this purpose.
5. Under "classification of administrative reports" there are given six different classes of reports. Look through several standard texts on accounting and see which of these classes of reports are discussed. How do you explain this situation?

6. It is stated that one class of reports is that "showing pertinent information necessary for the daily actions of executives and employees." Give several illustrations of such reports. Do you think this class of reports is as significant as classes one and two?
7. "Reports showing anticipated results of future operations are not prepared in a formal manner by the majority of business firms." Why is this true? Is this evidence that these reports are not significant?
8. Give illustrations of "reports which provide data with reference to conditions external to the business, but which affect its plans and policies."
9. State various devices which may be used in presenting business data and give illustrations of when each may be used to advantage.
10. "The chief executive may often request reports from subordinates giving their views on certain topics." Give illustrations.
11. The president of the X Company says that he does not believe in the "conferring of titles and the setting up of an elaborate organization scheme." He prefers to assign duties according to the abilities of the individuals in the organization and wants to be free to shift duties and responsibilities at pleasure; therefore, he dislikes an organization chart and in fact doubts whether one can be prepared for his business. What about it?
12. "The form and content of administrative reports must be conditioned by circumstances." Illustrate.
13. Many executives have an aversion to the use of reports. How do you account for this condition? Of what significance is it?
14. State the requisites of satisfactory reports and illustrate the application of each.
15. The sales manager of the M Company contends that he should receive an increase in salary because the comparative statements of income and expense of the company show an average increase of sales of 10 per cent for the past three years. What factors should be considered in determining whether his contention is justified?
16. "In the present-day type of business organization it is necessary to delegate responsibiilty and to enforce accountability." What does this mean? Of what significance is this fact in the study of standards and records?

EXERCISE NO. 8

The controller of the National Hardware Company (see Exercise No. 1) decides that the administrative reports of the company are incomplete and unsatisfactory. He instructs a staff assistant to make a study of the reporting requirements of the firm and to design appropriate reports. The staff assistant decides that, among many others, there should be reports to show the following:

1. Sales of each branch in such form that they can be compared with the sales of each other branch.

2. The sources of the raw materials used in the manufacture of each major product of the company.

3. The sources of labor employed by each factory.

4. The unfilled orders for the company as a whole and at each factory.

5. The inventory at each factory.

6. The turnover of capital, merchandise, and labor at each unit of the company and for the company as a whole.

7. The extent to which the sales force covers all of the territory of the United States and the intensity with which it works different parts of this territory.

8. The relationship between the price of the principal products sold by the company and the price of fifteen "basic" commodities.

9. The daily production, and the daily shipments from stock at each factory.

10. The co-ordination of the sales and the production program.

11. The market conditions in the territory of each branch at the end of each week.

12. The goods which are to be shipped each day.

13. The cash received by each unit of the organization each day.

14. The selling expenses of each unit of the organization.

15. The orders received by each unit of the organization each week.

16. The accounts payable falling due during the next week.

17. A comparison of the amount of goods produced by the company and the amount purchased from outsiders, and the change in this ratio year by year.

18. The distribution of the selling price of each major product as between profits and the various costs and expenses incurred in producing and selling the product.

19. The cost per unit in each factory of products made in two or more factories.

20. The distribution in the United States and in foreign countries of the population which may be considered potential customers of the company.

Required

Write a report stating:

1. The form of report (see discussion of suggestive forms of reports in present chapter) which should be used for each of the foregoing purposes.

2. Which of these reports should be made periodically and which would be of only temporary service?

3. By whom each report should be used, and for what purpose.

REFERENCES FOR FURTHER STUDY

1. Bennett, *Corporation Accounting*, chap. xxiv.
2. Duncan, *Commercial Research*, chap. viii.
3. Frederick, *Business Research and Statistics*, chaps. xviii and xix.
4. Brinton, *Graphic Method of Presenting Facts*.

CHAPTER IX

THE STANDARD FORM OF BALANCE SHEET

Definition and Purpose of Balance Sheet

The administrative report most frequently prepared and most widely used is that showing the assets, liabilities, and proprietorship of a "going" concern. This report is known by various titles such as "Balance Sheet," "Financial Statement," "Statement of Resources and Liabilities," "Statement of Assets, Liabilities, and Proprietorship," "Statement of Condition," and "Statement of Financial Condition." Probably "Statement of Assets, Liabilities, and Proprietorship" is the title most descriptive of the contents of this report, but accountants, both public and private, almost universally use the term "Balance Sheet." Business men have become familiar with this term and in most cases have adopted it. Consequently, "balance sheet" may be regarded as the standard title for this report.

There are some conditions under which the term balance sheet is not customarily used as the title of reports on financial condition. Banks in most cases use the title "Statement of Condition" or "Statement of Resources and Liabilities." Some accountants contend that a report on financial condition prepared from single-entry records should be termed a "Statement of Assets and Liabilities" to distinguish it from the customary balance sheet prepared from double-entry records. Since it is the purpose of both reports to show the same kind of information, and from the same point of view, there seems to be no good reason why their titles should be different. A statement of the assets, liabilities, and proprietorship of an insolvent or liquidating business is termed a "Statement of Affairs" to distinguish it from the balance sheet, which shows the same items of information for a going concern.

The purpose of the balance sheet is indicated by its definition. It presents the assets, liabilities, and proprietorship of a business in proper form to show its financial condition at a specific time. It is a picture of a concern, stated in dollars and cents, indicating what it owns, what it owes and what it is worth, net. It provides information to those who have relations with the business. It assists them to judge the results of these relations in the past, and to plan what they should be in the future. It is apparent that these parties will need information supplementary to that given in the balance sheet. Executives and employees, directors, stockholders, bondholders, bank creditors, merchandise creditors, and governmental agencies are those for whom the balance sheet renders the most important service.

Classification of Balance Sheet Problems

From the point of view of both the accountant and the business executive, the problems which arise in connection with the balance sheet fall into three broad groups:

1. Those relating to its construction and form.
2. Those relating to the valuation of the items which appear on it.
3. Those relating to its analysis and interpretation.

The first two groups will be given consideration in the present chapter, while the third group will be considered in chapters xi and xii.

The Standard Form of Balance Sheet

Professional accountants and writers on accounting, as well as those interested in credit granting, have given much attention to the balance sheet as a formal statement of financial condition. Many attempts have been made to devise a standard form for use by business enterprises generally. The assumption underlying these attempts is that a single form can be devised, capable of giving all those interested in the financial condition of a business the information they desire.

Professional accountants have had much to do with the attempt to develop a standardized form. They have been influenced, no doubt, by the fact that they are usually called upon to prepare one balance sheet at the end of the fiscal period, and this balance sheet may be used for various purposes. Consequently they desire to develop the form which will best serve the needs of all parties. Credit men acting through such associations as the National Association of Credit Men and the American Bankers Association have also exercised considerable influence in the movement for a standard form. They wish to request its use by applicants for credit and by this means secure more useful information than they will obtain if each applicant is left to prepare his balance sheet as he prefers.

A uniform or standard form of balance sheet has certain distinct advantages. It sets up a standard with which business firms can compare their reports. This will be especially true if credit men and others interested in the financial condition of business firms insist on the use of the standard form. It also tends to develop a uniform accounting terminology, which has been woefully lacking. For example, it tends to develop a standard meaning for such terms as "fixed assets," "current assets," "deferred charges," "reserves," etc. The development of a uniform terminology and a uniform classification and arrangement of balance-sheet items makes it possible to read a balance sheet more easily and accurately. It makes possible a comparison of data in connection with different firms and for different periods. As a result, a bank or a merchandise creditor is not merely able to understand from the balance sheet the financial condition of a customer applying for credit. It is able to compare the present financial condition of the customer with his previous financial condition, as shown by previous balance sheets. It may also compare his condition with that of other firms in the same line of business, as shown by their balance sheets. This would not be possible (or would at least be difficult) if different firms use different forms of reports and a different terminology, or if the same firm did not use the same form and terminology in all its balance sheets.

There are at least two disadvantages in the use of the standard form of balance sheet. In the first place, with uniformity there is always a tendency toward rigidity and inelasticity. This is almost inevitably the result, for when uniformity is once secured, a change is made with difficulty. We have seen that standards should be subject to constant scrutiny and that they should be revised as soon as such revision seems desirable and feasible. It is not so difficult to make revisions of the standards of any specific business, but when standards are established for the use of business firms in general, such revisions are often difficult to secure. A second disadvantage is that no one form can be devised which will show properly the financial condition of all types of business firms under changing business conditions. The balance sheet is intended to present a picture of the firm for which it is made. The operations of business firms vary widely. This results in a wide divergence in the nature of their assets, liabilities, and proprietorship. Consequently, it is impossible to have one picture which will present a true likeness of all firms.

Probably the most that can be done to obtain the maximum benefits, and to eliminate the disadvantages which may arise from such standardization, is

1. To follow in its construction certain general principles applicable to all balance sheets, and consequently capable of standardization.

2. To develop a standard practice for the arrangement and classification of the items which customarily appear on all balance sheets.

General Principles Governing the Construction of Balance Sheet

The broad general features which should be observed in the preparation of any financial statement may be briefly summarized as follows:

a) All assets and liabilities should be stated gross, the object being to show the total capital which the concern uses, and to show on the other hand from what sources it draws this capital. Accounts payable should not be offset against accounts receivable, and accounts receivable should not be offset against accounts payable. Net equity in purchases under contracts should not be shown among the assets in the net amount, but rather the total asset should be shown on the one hand and the total liability for which the concern might be held, on the other.

b) The balance sheet should indicate clearly on both the asset and liability sides the distinction between current accounts and fixed investment. This is a very fundamental distinction—the one represents the capital turning over in the daily transactions of the business; the other represents the fixed investment, or the house in which the business is carried on. It is highly important to set forth the relationship between the fixed investment and the current investment. This relationship will vary widely in different industries, each having a more or less characteristic proportion of capital tied up in each of the current and fixed sections.

c) The net working capital should be clearly and readily determinable from the face of the balance sheet. It might even be stated in dollars and cents with entire propriety.

d) The various assets and liabilities should be logically arranged and grouped so as to set forth the total of each class of items correctly. A balance sheet may be misstated—may actually be misleading—because of improper arrangement and grouping of accounts, even though every item shown is entirely correct in amount and designation.

e) The basis for the valuation of all asset accounts should be indicated. That is, the face of the balance sheet should show whether or not a reserve is provided against possible loss on accounts receivable; whether or not inventories are valued at cost or market; and whether or not adequate reserves against possible shrinkage in values have been provided, if such are necessary. Investments and securities should show whether valued at cost, market, or par. Land, buildings, and machinery should show whether valued at cost or at appraised values at some definite date, and the amount of reserves for depreciation should be clearly indicated, etc.

f) The character and maturities of the liabilities should be clearly shown on the face of the balance sheet. Current liabilities should include all of those which would be liquidated within the near future, such as accounts payable, notes payable, federal taxes, dividends declared, etc. Every issue of long-term liabilities, however, should be set out, and the maturity of the issue and any peculiar features clearly shown. Reserves other than appropriated surplus should indicate clearly the nature of the provision and the possibility of its immediate requirement.

g) The net worth of the organization should be shown. This will consist of the stockholders' initial investment in stock, together with appropriated surplus and profit and loss or free surplus. The net worth of any business organization is a fundamental factor. It is immaterial whether that business organization is conducted as a partnership or is run by a private individual, or is incorporated. The net worth in all cases represents the difference between all of the assets which it owns and has on hand, and all of its liabilities. There is no more logic in showing the capital stock and surplus items in different sections of a corporation balance sheet than there would be in showing the initial investment of a private individual or a partner in a business in a section of his balance sheet separated from the accumulated earnings which he allows to remain in the business.[1]

Arrangement and Classification of Balance Sheet Items

There is no generally accepted practice for the arrangement and classification of balance-sheet items. As previously stated, it is neither possible nor desirable to secure complete standardization in this respect. It is desirable to secure uniformity with reference to the classification and arrangement of those items customarily found on balance sheets, and for which there is a standardized terminology.

In England the balance sheet is customarily prepared with the liabilities and proprietorship on the left-hand side, and the assets on the right-hand side, while in the United States the arrangement is just the reverse. There has been much discussion of the reasons for this difference of practice and the merits of the two methods. Probably the present English practice is due to the incorporation of the English form in laws passed many

[1] Taken from pamphlet of Illinois Manufacturers' Costs Association, *The Preparation and Use of Financial Statements*, pp. 6–7.

years ago. The reason for the use of this form in these laws does not seem to be clear.

Report and Account Form

Two general forms of the balance sheet are in use in the United States. On the first, which is known as the "report" form, the assets are listed and their total extended. Then the liabilities are listed immediately below the assets and their total extended below the total of the assets. By subtracting the two totals, the proprietorship is obtained. On the second, which is known as the "account" form, the assets are listed directly opposite the liabilities and proprietorship. The total of the assets is extended on a horizontal line with the total of the liabilities and proprietorship.

The report form is probably most easily understood by one untrained in accounting, since it seems logical to him to have a statement prepared in arithmetical form. The account form, however, is most used by accountants, and may be regarded as the standard type. Its prevalent use is probably due to the fact that it is better adapted for showing comparisons than is the report form. In the case of corporations or large companies, its use probably causes no confusion. For sole proprietorships and small firms, the report form is often more useful.

Priority of Different Classes of Assets and Liabilities

Another important aspect of the general form of balance sheets is the order in which the assets and liabilities are listed. According to one practice, the fixed assets are shown first on the balance sheet, followed by the remaining assets in the order of their liquidity, the most fixed in each case appearing first. On the opposite side, the capital stock is shown first, followed immediately by the fixed liabilities and these in turn are followed by the remaining liabilities in the order of their permanency, with those which are more permanent placed first. Items of proprietorship other than capital stock are placed as the last items on the liability side. According to the second method, the current assets are placed first on the asset side followed by the remaining assets in the order of their liquidity, the most liquid in each case appearing first. On the opposite side, the current liabilities are placed first, followed by the remaining liabilities in the order of their permanency, the most permanent appearing last. The proprietorship items are shown in one group after all the liabilities are stated.

The first method is illustrated by the following skeleton outline:

THE KING CORPORATION

Balance Sheet, December 31, 1922

Assets		*Liabilities and Proprietorship*	
Tangible Fixed Assets	....	Capital Stock	....
Intangible Assets	....	Funded Debt	....
Investments	....	Current Liabilities	....
Deferred Charges to Expense	....	Deferred Credits	....
Current Assets	....	Reserves	....
		Surplus	....
Total	....	Total	....

The second method is illustrated in like manner by the following skeleton outline:

THE KING CORPORATION

Balance Sheet, December 31, 1922

Assets		*Liabilities and Proprietorship*	
Current Assets	....	Current Liabilities	....
Deferred Charges to Expense	....	Funded Debt	....
Investments	....	Deferred Credits	....
Tangible Fixed Assets	....	Capital Stock	....
Intangible Assets	....	Reserves	....
		Surplus	....
Total	....	Total	....

An examination of the published reports of corporations which usually contain certified balance sheets, indicates that accountants (at least those of the older and larger firms), use the first method in the majority of cases. It should be remembered in this connection that few corporations and practically no partnerships and individuals publish their financial statements. It is very probable that the financial statements of these firms (usually certified by accountants who have not had English training) are prepared in the majority of cases according to the second method. It is the opinion of the author that the second method is the more logical and more useful. The current assets and the current liabilities are those most subject to change and are presumably the ones in which chief interest should be manifested by the periodic inspector of the balance sheet. It is also the current items which are most apt to indicate the need of immediate action. It is therefore logical to place these first on the balance sheet as a means of emphasis. Another important advantage of the second method is that it results in showing all the items of proprietorship together while by the first method capital stock is shown as the first item on the liability side of the balance sheet and the proprietorship reserves and surplus are shown as the last items. This procedure seems as inconsistent as would the placing of cash on hand as the first item and cash in bank as the last item on the asset side of the balance sheet. Again, proprietorship is not a liability in the sense in which that term is generally understood. It is desirable that its distinction from the liabilities be indicated by showing it separately. The second method facilitates this procedure since it places all proprietorship items together.

Order of Asset and Liability Groups

There is some difference of opinion concerning the proper position of certain asset and liability groups when either of these forms of balance sheet is used. There is also a difference of opinion concerning the group in which some items should be placed. Those groups and items about which there is the most frequent difference of opinion are the following:

1. Investments
2. Intangible Assets
3. Deferred Charges and Credits
4. Reserves
5. Proprietorship
6. Contingent liabilities

Each will be discussed briefly.

Investments

Many accountants show investments as current assets if they consist of stocks or bonds which are readily salable. They do this on the theory that since they are readily salable, they can be easily converted into cash and therefore are liquid or current assets. The author holds that current assets should include only those which will be converted into cash in the regular operations of the business. Since there is no assurance that securities will be converted, it seems better to show them under a separate heading. Again, securities do not arise as a result of the normal operations of the business. Therefore it is better to exclude them from current assets, so that comparative figures over a number of periods will be more significant.[1] All accountants are agreed that securities which are held for the purpose of exercising an essential control of the company they represent cannot be considered as current assets. It is better therefore to have a section entitled "Investments" under which will be shown both temporary and permanent investments. Each class should be described so as to indicate clearly its nature.

Intangible Assets

Intangible assets are sometimes shown as a part of the fixed assets, but because of their distinctly different (and sometimes questionable) nature it is best to show them as a separate item,

[1] If items which do not result from the normal trading operations are included in current assets, such significant standards as the ratio of current assets to sales and of current assets to current liabilities are materially affected.

so they will be plainly evident to all who inspect the balance sheet. Sometimes the value of the intangible assets is omitted entirely from the balance sheet; but attention is called to the existence of these assets by a note at the bottom of the list of assets. For example, the balance sheet of the B. F. Goodrich Company and its subsidiaries as of December 31, 1920, contains the following among the assets:

> This balance sheet does not take into account the capital asset of good-will on the books amounting to $57,798,000, nor the patents or trade-marks carried on the books at $1.00, but shows the condition of the company on the basis of tangible capital assets.

On the balance sheet recommended by the Federal Reserve Board as shown on pages 170 and 171 the intangible assets, so far as they are represented by good-will, are shown as a subtraction from the surplus. Although both of these plans have much to commend them as a method of treating good-will (in most cases the principal item of intangible assets) it is doubtful whether they can be justified as a means of showing such intangible assets as patents and copyrights. These assets may have a very rẽal value, and there seems to be no good reason why they should not be shown in the same manner as any other asset. Of course, care must be exercised to see that they are not shown at inflated values.

Deferred Charges and Credits

There is some question concerning the position of the deferred charges and deferred credits. Many accountants place the deferred charges as the last item among the assets. It seems more logical to place these immediately after the current assets, since by the operation of the business they will be converted into a salable commodity or service in the near future. Most of the fixed assets are, strictly speaking, deferred charges to expense, being gradually charged to expense by the periodic depreciation charge. The deferred charges are placed under a separate heading because they are expected to be charged off more quickly than fixed assets such as machinery and buildings.

It seems proper therefore that they be placed between the current assets and the fixed assets to indicate that they are more liquid than the latter. It is assumed that the deferred charges to expense will include only items like prepaid insurance and interest. Deferred charges to profit and loss, such as organization expenses, are properly shown after all the assets are stated. Deferred credits to income are sometimes shown immediately above the proprietorship items, presumably on the theory that they are surplus items held in reserve. Some accountants place them immediately after the current liabilities on the theory that they represent liabilities of a current nature until a service is rendered in satisfaction of them.

Reserves

Accountants and business men differ as to the method of showing reserves on the balance sheet. This difference is due in large part to failure to see clearly the nature of reserves, and to distinguish between the different classes of reserves. Three kinds of items may be found on the balance sheet under the title of reserves:

1. There are reserves for taxes and similar items which are not reserves in the proper sense, but instead are accrued liabilities. They should be shown as such under current liabilities.

2. There are reserves which represent the estimated decrease in the value of assets, such as reserves for depreciation and reserves for bad debts. These should be shown on the asset side of the balance sheet as deductions from the assets to which they pertain. That is, the reserves for depreciation should be deducted from the fixed assets on which they are estimated, and the reserve for bad debts should be deducted from the accounts receivable. These reserves may properly be called "valuation" reserves since they are used in determining the value of assets.

3. There are reserves which represent surplus that has been set aside for a certain length of time for a specific purpose, and

which later will be carried back to surplus account. Since these reserves will be later transferred back to surplus and represent surplus which is temporarily restricted as to use, they may be considered as a part of the surplus and therefore a part of the proprietorship of the business. The reserve of this kind which is of most frequent occurrence is the reserve for sinking fund. The nature of this reserve can be illustrated by the following typical case:

The XY Corporation issues $20,000 in bonds, payable in twenty years, with a provision that $1,000 shall be carried to reserve for sinking fund each year. At the time the bonds are issued the following entry will be made:

		Cash	$20,000	00		
		Bonds Payable			$20,000	00
		To record the sale of bonds for cash.				

At the end of each year, the following entry will be made:

		Profits and Loss	$1,000	00		
		Reserve for Sinking Fund			$1,000	00
		To record the annual credit to sinking fund in accordance with the terms of the mortgage.				

At the end of twenty years, the bonds-payable account and the reserve for sinking fund will appear as follows:

Bonds Payable

										$20,000	00

Reserve for Sinking Fund

										$20,000	00

When the bonds are paid, the following entry will be made:

		Bonds Payable Cash To record the payment of bonds	$20,000	00	$20,000	00

Since the bonds are now paid, there is no further use for the reserve for sinking fund, and the $20,000 shown in the reserve for sinking fund account will be carried to the surplus account by the following entry:

		Reserve for Sinking Fund Surplus To record the transfer of the reserve for sinking fund to surplus	$20,000	00	$20,000	00

Since the reserve for sinking fund eventually goes back into surplus, the balance of this account throughout the twenty years may be regarded as appropriated surplus, and shown as a part of the net worth of the business. Other reserves of the same nature as the reserve for sinking fund, are reserve for extensions, and reserve for retirement of stock. A reserve for contingencies is customarily placed in this group and this practice seems expedient although part of this reserve will not go back to surplus if the contingencies materialize. This group of reserves are termed "proprietorship" reserves and are shown on the balance sheet as a part of the proprietorship group of items.

Some accountants show reserves of all kinds in one group on the liability side of the balance sheet under the general heading of reserves. In this group are included such items as accrued taxes, reserve for depreciation on buildings, and reserve for sinking fund. This procedure is clearly erroneous, since it combines under one heading items which are entirely different in nature, the only similarity being that in a double-entry set of records they are all shown on the credit side of the ledger. There is an increasing tendency to show the valuation reserves as a subtraction from the related assets.

Proprietorship

Accountants do not agree as to the method of showing proprietorship. In many cases no distinction is made between proprietorship and liabilities. Often the proprietorship items are not shown in one group. For example, on the balance sheet of a corporation the capital stock will be shown as the first item on the liability side, the unappropriated surplus as the last item, and the proprietorship reserves as a part of the general group, reserves, in which are included reserves of the various types previously discussed. Under such conditions it is impossible to determine the total liabilities or the net worth of the corporation without a process of analysis and calculation. Leaving aside the question whether proprietorship is a liability, it is at least sufficiently different in nature from the other liabilities to make desirable a clear separation of the two classes of items. The proprietorship items should be grouped and totaled so that the amount of the proprietorship can be easily seen.

In this and subsequent chapters the term "proprietorship" is used to refer to the interest of the owners in the business. This term is used in preference to the term "capital" which is more frequently found in texts and accounting reports, for two reasons: (*a*) the student is taught throughout the text to look at his accounting records from the viewpoint of the proprietor; therefore, it seems logical for him to think of "proprietorship" as the interest of the proprietor; (*b*) the term "capital" is used to mean several things. It is often used by business men to refer to the assets of a business. For example, the financial columns of newspapers refer to "working capital," "fixed capital," etc. It is used by economists to refer to assets in general which are used in productive effort. The layman should be less apt to become confused by the term proprietorship. It will be understood that "proprietorship," "capital," "net worth," "net capital," and "net assets" are synonymous terms.

Contingent Liabilities

Contingent liabilities are shown on the balance sheet in different ways. The different methods of showing them can be illustrated by the most frequent contingent item, discounted notes receivable. These may be shown in three ways. The notes receivable discounted may be shown as both an asset and a liability. The two items serve to cancel each other, but by their presence among the assets and liabilities, attention is called to the existence of the contingent liability. This method is illustrated by the balance sheet shown on pages 170 and 171. A modification of this method is to show the liability item subtracted from the asset item, on the asset side of the balance sheet. A second method is to omit all reference to the contingent liability in the balance sheet proper, but call attention to it by means of a footnote to the balance sheet. A third method is shown by the balance sheet of the B. F. Goodrich Company where a similar liability is shown by a note on the liability side. Any of these methods is satisfactory, but the last method shows the contingent liability in an effective manner and eliminates the necessity of adding undesirable footnotes resulting from the second method, and at the same time prevents the distortion of the totals of the assets and liabilities resulting from the first.

Standard Form of Balance Sheet, Showing Detailed Classification of Items

The Federal Reserve Board has suggested the following standard form of balance sheet for general use by all business concerns having occasion to seek credit from banks which are members of the Federal Reserve System:

Assets

Cash:		
1a. Cash on hand—currency and coin	......	
1b. Cash in bank	......	
		......
Notes and accounts receivable:		
3. Notes receivable of customers on hand (not past due)	......	
5. Notes receivable discounted or sold with indorsement or guaranty	......	
7. Accounts receivable, customers (not past due)	......	
9. Notes receivable, customers, past due (cash value $)	......	
11. Accounts receivable, customers, past due (cash value $)	......	
Less:		
13. Provisions for bad debts	......	
15. Provisions for discounts, freights, allowances, etc.	......	
		......
Inventories:		
17. Raw material on hand	......	
19. Goods in process	......	
21. Uncompleted contracts		
Less payments on account thereof	......	
23. Finished goods on hand	......	
		......
Other quick assets (describe fully)		
......	......	
......	......	
		......
Total quick assets (excluding all investments)		......
Securities:		
25. Securities readily marketable and salable without impairing the business	......	
27. Notes given by officers, stockholders, or employees	......	
29. Accounts due from officers, stockholders, or employees	......	......
Total current assets		......
Fixed assets:		
31. Land used for plant	......	
33. Buildings used for plant	......	
35. Machinery	......	
37 Tools and plant equipment	......	
39. Patterns and drawings	......	
41. Office furniture and fixtures	......	
43. Other fixed assets, if any (describe fully)	......	
45. Reserves for depreciation	......	......
Total fixed assets	......	
Deferred charges:		
47. Prepaid expenses, interest, insurance, taxes, etc.	......	......
Other assets:		
49.	......	......
Total assets		......

Liabilities

Bills, notes, and accounts payable:		
Unsecured bills and notes		
2. Acceptances made for merchandise or raw material purchased	......	
4. Notes given for merchandise or raw material purchased	......	
6. Notes given to banks for money borrowed	......	
8. Notes sold through brokers	......	
10 Notes given for machinery, additions to plant, etc.	......	
12. Notes due to stockholders, officers, or employees	......	......
Unsecured accounts:		
14. Accounts payable for purchases (not yet due)	......	
16. Accounts payable for purchases (past due)	......	
18. Accounts payable to stockholders, officers, or employees	......	
		......
Secured liabilities:		
20a. Notes receivable discounted or sold with indorsement or guaranty (contra)	......	
20b. Customers' accounts discounted or assigned (contra)	......	
20c. Obligations secured by liens on inventories	......	......
22. Accrued liabilities (interest, taxes, wages, etc.)	......	
Other current liabilities (describe fully):		
....	......	......
....	......	......
Total current liabilities		......
Fixed liabilities:		
24. Mortgages on plant (due date....)	......	
26. Mortgages on other real estate (due date....)	......	
28 Chattel mortgage on machinery or equipment (due date....)	......	
30. Bonded debt (due date....)	......	......
32. Other fixed liabilities (describe fully)	......	
....	......	
....	......	......
Total liabilities		......
Net worth:		
34. If a corporation—		
a) Preferred stock (less stock in treasury)	......	
b) Common stock (less stock in treasury)	......	
c) Surplus and ndivided profits	......	
Less—		
d) Book value of good-will	......	
e) Deficit	......	......
36. If an individual or partnership—		
a) Capital	......	......
b) Undistributed profits or deficit	......	......
Total.		......

This balance sheet was prepared for the Federal Reserve Board by a committee of accountants representing the American Institute of Accountants. It represents, therefore, the best opinion of the profession, and is worth a careful study by the student.

Comments on Balance Sheet Proposed by the Federal Reserve Board

This balance sheet presents several interesting points:

1. It shows an analysis of assets and liabilities more detailed than is necessary in the usual balance sheet. This detail is given because this balance sheet is prepared from the banker's or credit point of view. The detailed analysis of receivables and payables is useful in making a credit analysis.

2. The assets and liabilities are arranged in the order of liquidity, the most liquid appearing first. This corresponds to the preferred procedure stated earlier in this chapter.

3. The current assets and current liabilities are set off by sub-totals so that net working capital can be easily computed. The use of sub-totals greatly facilitates the interpretation of financial statements.

4. The deferred charges covering prepaid interest, insurance, taxes, etc., are shown following the fixed assets. Although the position of these items is not of major importance, it is preferable from the author's point of view that they be shown immediately after the current assets.

5. The proprietorship items are shown in one group and totalled in such a manner that the net worth of the business is easily ascertained. This is in conformity with the arguments presented earlier in this chapter.

6. The good-will is excluded from the assets and shown as a deduction from surplus. The purpose of this is to show as assets only those of a tangible nature. This is ultra-conservative if the intangible assets represent real values.

Condensed Form of Balance Sheet

The executive is interested in trends and relationships rather than details. It is customary therefore to prepare for executives and others who do not desire too much detail a condensed balance sheet which shows only totals for each group of assets and liabilities, except the current assets and current liabilities. The detailed balance sheet and the condensed balance sheet are prepared in the same form, so that they can be checked against each other at any time. Then, too, the former can be used to supply details to explain the latter when necessary. In making the condensed balance sheet, there should be no reclassification of accounts or shifting of items—there should only be the omission of detailed items and the statement of group totals.

A very good example of the condensed balance sheet is afforded by the balance sheet of the B. F. Goodrich Company which is shown on pages 174 and 175.

Basis of Valuing Items on Balance Sheet

The common basis for determining the value of balance-sheet items is the going-concern basis. That is, the values assigned to the assets are the values of such assets to a going concern. The amount of the liabilities are determined and stated from the same point of view. Another basis for stating values on the balance sheet is the liquidation basis. That is, the values are stated on the assumption that the business is to be liquidated and the assets converted into cash and used in the payment of the liabilities. A balance sheet prepared on this basis is termed a statement of affairs. This form of report will be discussed in a later chapter.

There is an old and conservative rule of accounting and business practice that no profits should be anticipated and that all losses should be provided for. This rule has significance in the preparation of both the statement of income and expense and

THE B. F. GOODRICH COMPANY

(A NEW YORK CORPORATION)

AND SUBSIDIARY COMPANIES

CONSOLIDATED BALANCE SHEET
DECEMBER 31, 1920

Assets

Current Assets:		
Cash in Banks and On Hand	$ 3,058,314.68	
United States Liberty Loan and Canadian Victory Bonds	44,917.85	
Bills Receivable	1,071,126.67	
Trade Accounts Receivable, after deducting Reserve to cover Doubtful Accounts, Discounts and Allowances	20,172,177.69	
Other Accounts Receivable	503,964.77	
Raw Materials, Partly Manufactured and Finished Stock	72,631,057.55	
		$ 97,481,559.02
14,186 Shares of 7 Per Cent Cumulative Preferred Stock in Treasury at Par		1,418,600.00
Investments and Advances to Other Companies		6,153,213.68
Tangible Capital Assets:		
Real Estate, Buildings, Machinery, and Sundry Equipment, less Reserve of $8,611,998.52 for Depreciation and Obsolescence		32,828,063.72
Intangible Capital Assets:		
This Balance Sheet does not take into account the Capital Asset of Good-will on the books amounting to $57,798,000.00, nor the Patents or Trade-marks carried on the books at $1.00, but shows the condition of the Company on the basis of Tangible Capital Assets		....
Deferred Charges to Future Operations Prepaid Insurance, Interest, Taxes, etc		1,028,675.86
Total assets		$138,910,112.28

The Common Stock is covered by certificates representing 196,665 shares of no par value and certificates, representing 404,735 original shares of $100.00 each not yet formally exchanged for new certificates.

THE B. F. GOODRICH COMPANY

(A NEW YORK CORPORATION)

AND SUBSIDIARY COMPANIES

CONSOLIDATED BALANCE SHEET
DECEMBER 31, 1920

Liabilities

Current Liabilities		
Bills Payable	$29,122,955.76	
Accounts Payable, including net ascertained liability of $84,821.59 on Company's stock originally purchased for distribution among employees	$ 2,580,236.19	
Sundry Accrued Liabilities	1,461,331.13	
		$ 33,164,523.08
5 Year 7 Per cent Convertible Gold Notes Due April 1, 1925		30,000,000.00
Reserves For:		
Contingencies, and Approximate Losses on Raw Material Commitments for Future Delivery	10,000,000.00	
Pensions	600,000.00	
Amortization of War Facilities	1,225,063.73	
Miscellaneous (Including $134,597.00 Rentals Received in Advance applicable to Future years)	184,561.14	
		12,009,624.87
Capital Stock and Surplus (Exclusive of Intangible Capital Assets):		
7 Per Cent Cumulative Preferred Stock—		
450,000 Shares issued at $100.00 each	$45,000,000.00	
Deduct—65,880 Shares redeemed and cancelled, including 11,880 Shares redeemed during 1920	6,588,000.00	
	$38,412,000.00	
100,000 Shares of 7 per cent Cumulative Preferred Stock, par value of $100.00 each authorized and unissued	10,000,000.00	
Common Stock—		
Authorized—1,500,000 Shares of no par value. Outstanding January 1 1920—600,000 Shares at $100.00 each	60,000,000.00	
Less—Exclusion of Intangible Capital Assets, namely, Patents, Trademarks and Good-will, per contra	57,798,001.00	
	$ 2,201,999.00	
1,400 Shares of no par value issued during the year at $80.00 each	112,000.00	
	$ 2,313,999.00	
Earned Surplus, per annexed statement	22,706,498.92	
	$25,020,497.92	
Employees' net credits on subscriptions to stock not yet issued	303,466.41	
		$ 63,735,964.33
Contingent Liabilities:		
Bankers' Loans to Employees, secured by deposit of stock of the Company purchased by them, and by the guarantee of the Company	$ 1,036,578.24	
		$138,910,112.28

(The Common Stock Dividend of $1.50 per share declared October 27, 1920, payable February 15, 1921, has not been deducted from the Surplus shown above.)

the balance sheet, for if the profits are overstated or the losses understated, these mistatements will be reflected on the balance sheet by an improper statement of some of the items. For example, if depreciation is understated on the statement of income and expense, the relative fixed asset will be overstated on the balance sheet. If unrealized profit on merchandise is anticipated on the statement of income and expense, the merchandise inventory will be overstated on the balance sheet.

The preparation of the balance sheet of a going concern so as to state all the assets at conservative but full and fair values requires, among other things, the following:

1. That accounts receivable be shown at book value, less the estimated loss for bad debts. All debts proved bad should be at once eliminated from the accounts.

2. That inventories ordinarily be stated at cost or market value, whichever is the lower. Special conditions under which other methods of valuation may be acceptable will be considered later. By market value is meant replacement cost, not selling price.

3. That prepaid expenses be stated at cost and be equitably allocated between periods.

4. That investments in other companies be stated so as not to anticipate profits because of increases in market values, but so as to provide for possible losses arising from this source. Bonds to be held until maturity must be stated at their proper amortized value if purchased at a discount or a premium.

5. That fixed tangible assets be stated at cost less depreciation. Under special conditions appraisal values may be given recognition in the accounts (see chapter xxxv).

6. That intangible fixed assets be stated at cost less any sums properly written off.

The proper statement of values on a balance sheet further requires

1. That all determinable liabilities at their full amount be offset against the assets.

2. That proper mention be made of all contingent liabilities.

3. That the difference between the assets and liabilities be set forth so as to show properly the proprietorship claims and the value of each.

Need of Consistency in Stating Balance-Sheet Valuations

Statistical data covering two or more operating periods must be stated on a consistent basis if they are to be of value in forming business judgments. Varying bases for valuing balance-sheet accounts and irregular practice in handling accounts from year to year vitiate the value of both the balance sheet and the statement of income and expense as administrative reports. Illustrations of inconsistency in stating values are found in the following practices of some business firms:

1. Provision for depreciation is increased in good years and decreased in bad. This is obviously incorrect since depreciation is an operating expense, and no profit is earned until depreciation has been provided for.

2. Repairs are decreased in the years when profits are poor. This causes the accumulation of deferred maintenance which increases the expenses of more prosperous years. This is obviously incorrect.

3. Smaller amounts are allowed for bad debts in years when profits are small. This means that heavier losses will fall on subsequent periods when receivables are proven bad. If the falling off in profits is due to a business depression, it is probable that the provision for bad debts should be increased rather than decreased, since other firms are apt to be suffering from the same depression and consequently may be unable to pay debts.

4. Inventories may be valued differently at different stages of prosperity. They should be valued at all times so as to avoid the anticipation of profit, and to provide for all possible losses.

5. Accrued liabilities may be omitted when it is desired to avoid an increase in the expenses for which they are incurred. The incorrectness of this is apparent.

6. Deferred charges to expense may not be amortized on a consistent basis. This leads not only to a misstatement of financial condition, but also to an unfair distribution of the expense burden.

7. Fixed assets may be increased in value, and this increase shown as an operating profit. Such increases (except under rare conditions) should not be entered in the accounts. When entered, they should be clearly earmarked to show their nature.

The Federal Income Tax law coupled with the regulations of the Internal Revenue Department has done much to cause business firms to practice consistency in keeping their accounting records, and it is to be hoped that this desirable tendency will be continued.

One reason for the inconsistencies in the valuation of balance-sheet items is the conflicting points of view from which the balance sheet may be considered. Although it is universally agreed among both accountants and business men that the commercial balance sheet should be prepared from the point of view of the going concern, many (especially bankers and creditmen) unconsciously think in terms of the liquidating concern when discussing balance-sheet valuations. Again there is often a difference between the original cost, the replacement cost, and the income-producing value of an asset. For example, the appraisal value (which is the depreciated replacement cost) may be quite different from the book value (which is the depreciated original cost). From the point of view of income, the latter is the appropriate value, but from the point of view of financial condition arguments can be offered for the former. Similarly, deferred charges to profit and loss are often carried as "courtesy assets." They represent items which cannot be absorbed in current expense and therefore are carried forward and must be shown as a balance-sheet item. For example, a street railway is required by law to change its roadbed and equipment, and the book value of the equipment scrapped is so large it cannot be absorbed by reserves or surplus. Part of this loss will be carried forward to future periods.

It is very important that the one who constructs a balance sheet should maintain a consistent point of view. If it is necessary to vary from this the variation should be shown on the face of the balance sheet.

QUESTIONS FOR CLASS DISCUSSION

1. "The administrative report most frequently prepared and most widely used is that showing the assets, liabilities, and proprietorship of a going concern." Why is this true? Should this be the administrative report most widely used?
2. How do you account for the various titles by which the balance sheet is known? Can you account in the same manner for other variations in accounting terminology.
3. What reason can you give for the general use of the term "balance sheet" by accountants?
4. Explain and illustrate the difference between a balance sheet and a statement of affairs.
5. What advantages arise from the use of the standard form of balance sheet? What disadvantages may result?
6. Can you explain why the published reports of corporations usually contain balance sheets which show fixed assets first on the asset side and the capital stock as the first item on the liability side? What is your opinion of this method?
7. "Proprietorship is not a liability in the sense in which that term is generally understood, and it is desirable that its distinction from the liabilities be indicated by showing it separately." Explain in what ways proprietorship is different from a liability.
8. In what ways may intangible assets be shown on the balance sheet? What is your opinion of these methods?
9. The balance sheet of the B. F. Goodrich Company shows U.S. Liberty Bonds and Canadian Victory Bonds as a current asset. Do you agree?
10. The same company shows Treasury Stock as an asset. In what other way may it be shown?
11. The same balance sheet shows under its preferred stock the following: "65880 shares redeemed and cancelled, including 11,880 shares redeemed during 1920." Explain.
12. Explain the method of showing deferred charges and deferred credits on the balance sheet.

13. Explain and illustrate the difference between a valuation and a proprietorship reserve. How should each be shown on the balance sheet?
14. The balance sheet of the K Company contains the item "Reserve for Insurance Losses $250,000." Explain the meaning and purpose of this item.
15. Explain the methods of showing contingent liabilities on the balance sheet.
16. Explain the classification of notes and accounts receivable which may appear on the balance sheet.
17. What is the distinction between current and quick assets as these terms are used on the balance sheet published by the Federal Reserve Board?
18. Explain the classification of notes and accounts payable which may be made on the balance sheet.
19. What is the purpose of the condensed balance sheet, and in what ways does it differ from the detailed balance sheet?
20. State how each of the asset groups should be valued in preparing a balance sheet of a going concern. How would these valuations differ in the preparation of a statement of affairs?
21. In studying the comparative balance sheets of business firms, to what specific items would you give attention to ascertain whether the balance sheets of different dates had been prepared in a consistent manner, enabling a comparison of the facts presented?

EXERCISE NO. 9

E. C. Cline, as sole proprietor, is engaged in the retail furniture business, buying and selling for cash only. He owns the building in which he conducts his business but there is a mortgage equal to one-half of its value outstanding against it. He has been in business for several years and has left a considerable part of his profit in the business. He rents the second floor of his store building for office use to professional men. He has a truck which he uses in hauling incoming merchandise and in making deliveries to customers.

Cline forms a partnership with J. J. Reighard under the firm name of Cline & Reighard and the partnership engages in both retail and wholesale furniture trade. It both buys and sells for cash, on account, and for notes. Additional working capital is obtained by means of bank loans. The partners agree that twenty per cent of the yearly profits are to be retained in the business and these are not to be distributed to the partners on the books. The partners also decide to sell furniture on the installment plan.

Two years after the formation of the partnership, Cline & Reighard incorporates as the Cline-Reighard Furniture Co. Forty per cent of the capital stock is to be preferred and the remainder common. Ten per cent of the preferred stock and twenty per cent of the common stock is to be held in the treasury and not issued at present. The new company decides to manufacture part of the furniture which it sells, and accordingly purchases land, building, and equipment for that purpose. It issues bonds which are secured by a mortgage on their manufacturing plant, providing that a sinking fund is to be created to provide for their payment. The owners decide to set up a sinking fund reserve equal to the amount of the yearly payments to the sinking fund. The owners decide to reserve and set aside in a special account sufficient of their profits each year to be able to extend their plant and equipment to double its present size at the end of ten years.

Required

Prepare a balance sheet, supplying both items and amounts, for each of the following:

a). E. C. Cline, sole proprietor

b). Cline & Reighard, the partnership

c). The Cline Reighard Furniture Company, the corporation. It may be assumed that this business has been in operation for two years at the time the balance sheet is prepared.

In preparing these balance sheets use especial care to see

a). That each balance sheet is a logical development of the preceding one.

b). That each balance sheet shows reasonable ratios between the different items.

EXERCISE NO. 10

The trial balance of the American Mfg. Company as at December 31, 1920, is as follows:

American Manufacturing Company

Trial Balance, December 31, 1920

Real Estate	$ 25,000
Buildings	50,000
Machinery	40,000
Tools	7,000
Patents	25,000
Patterns	5,000
Merchandise purchase account	420,000
Bills receivable	15,000
Accounts receivable	250,000
Forward	$837,000

Brought forward	$837,000	
Insurance on buildings	300	
Insurance on machinery, tools, and patterns	500	
Insurance on merchandise	650	
Taxes, real estate	1,500	
Interest general	7,000	
Bond interest	2,500	
Cash	31,500	
Labor, productive	310,000	
Labor, unproductive	55,000	
Power	21,000	
Repairs to building	950	
Repairs to machinery	1,310	
Factory expenses	3,010	
Employers' liability	4,000	
Office pay-roll	18,000	
Inventory merchandise January 1, 1920	75,000	
Return sales account	41,000	
Merchandise sales account		1,090,500
Allowances	10,900	
Office furniture and fixtures	5,700	
Salaries to officers	15,000	
Postage	2,000	
Telegrams and telephones	1,800	
Taxes, personal property	1,000	
Collection and exchange	700	
Stationery and printing	3,050	
Freight in	23,000	
Freight out	11,000	
Cartage and express	3,750	
Bonding of employes (office)	250	
Traveling expense, salesmen	17,500	
Salesmen's commissions and salaries	40,000	
Bad debts	7,400	
Bond Account		40,000
Bills payable		100,000
Accounts payable		43,000
Surplus		39,020
Capital Stock		200,000
Reserves to provide for depreciation on		
Buildings		5,250
Machinery		12,500
Patents		7,500
Office furniture and fixtures		2,500
Bad debts		13,000
	$1,553,270	$1,553,270

In addition to the information obtainable from the trial balance, the following data must be taken into consideration:

Inventory of merchandise, December 31, 1920, $90,000.00.
Inventory of tools, December 31, 1920, $4,500.00.
Inventory of patterns at December 31, 1920, $4,000.00.
Depreciation on buildings at rate of 3 per cent.
Depreciation on machinery at rate of 10 per cent.
Depreciation on patents at rate of 6 per cent.
Depreciation on office furnitures and fixtures at rate of 10 per cent.
Reserve for bad debts one-half of one per cent of sales.
One-half of the insurance shown on the books is unexpired.

Required

1. Restate the trial balance showing the items in the order in which you think they should appear.

2. Prepare a balance sheet as of December 31, 1920.

EXERCISE NO. 11

The trial balance of F. M. Jones, sole proprietor on December 31, 1921, is as follows:

F. M. Jones, capital		$40,000.00
F. M. Jones, Personal	$ 2,000.00	
Bank of Manhattan	180.00	
Cash on Hand	1,200.00	
Merchandise	17,200.00	
Repairs	175.00	
Bills Receivable	12,800.00	
Bills Payable		8,000.00
Real Estate	2,700.00	
Bank Stock	3,132.00	
General Expenses	3,720.00	
Freight	2,000.00	
Accounts Receivable	16,000.00	
Accounts Payable		20,000.00
Profits and Loss	6,893.00	
	$68,000.00	$68,000.00

The inventory of merchandise on December 31, 1921, is $30,000.

Required

1. Assuming any necessary information, prepare a balance sheet for F. M. Jones as of December 31, 1921. State as footnotes any assumptions made.

2. Write a letter to F. M. Jones suggesting such changes in his accounting as you think his trial balance shows should be made. Explain clearly why each change should be made.

REFERENCES FOR FURTHER STUDY

1. Kester, *Accounting Theory and Practice*, Vol. II, chap. iv.
2. Hatfield, *Modern Accounting*, chap. iv.
3. Cole, *Fundamentals of Accounting*, chap. ii.
4. Wildman, *Principles of Accounting*, chap. xlvi.

CHAPTER X

THE STANDARD FORM OF STATEMENT OF INCOME AND EXPENSE

Definition and Purpose of Statement of Income and Expense

It is customary to prepare for the use of executives and others a companion report to the balance sheet, stating the income and expenses of a business for a certain period of time and the difference between the two—the net profit or net loss for the period. This report is known by various titles such as the following: "Statement of Profit and Loss," "Statement of Income," "Statement of Income, Profit and Loss," "Summary of Income and Profit and Loss," "Profit and Loss Account," "Statement of Income and Expenses," "Statement of Income and Capital Account," "Statement of Revenue and Expenses," "Statement of Earnings and Expenses," and "Statement of Operations." Most of these titles are sufficiently descriptive to serve. In the published reports of corporations the title "Income Account" is often found. Many practitioners use the title "Statement of Income and Profit and Loss." The title in most prevalent use, however, as evidenced by the literature of accounting and the reports of smaller companies is "Statement of Profit and Loss." If it is desired to describe the contents of the statement it would seem that "Statement of Income and Expense" would be the most descriptive of these titles. This title will be used in this discussion.

The primary purpose of the statement of income and expense is to provide information for the executives concerning income and expenses, so that these may be controlled and net income may be increased. Income and expense may be regarded as interacting forces, one tending toward an increase of net profit and the other tending toward its decrease. If executives are to exercise proper control of the income and expense-producing activities, they must have a periodic summary report showing the net result of these interacting forces. The statement of income and expense serves for this purpose. The balance sheet shows the condition of affairs after certain changes have been brought about; the statement of income and expense serves to explain the causes of these changes. Each is complementary to the other and when read together it is possible to tell the history of the operations of a business for the period concerned. It is of course necessary that both the balance sheet and statement of income and expense be supported by detailed statements, analyzing the totals shown on the summary reports.

Classification of Problems

The problems which arise in connection with the statement of income and expense are very similar in nature to those we have noticed in connection with the balance sheet. They can be classified roughly into three groups:

1. Those relating to the form of the statement and the arrangement of items thereon.

2. Those relating to the determination of the proper amount of the income and expense items which appear in the statement.

3. Those relating to the analyses and interpretation of the statement.

The first two of these groups will be considered in this chapter. The last group will be considered in chapters xi and xii.

Standard Form of Statement of Income and Expense

In the recent movement for the standardization of financial reports, there does not seem to have been as near an approach to a standardization of the form of the statement of income and expense as there has been to the standardization of the form of the balance sheet. This results partly from the fact that business firms differ more in the nature of their incomes and expenses than they do in the nature of their assets and liabilities. Then, too, accountants vary more in their thinking on the nature and treatment of the various items of income and expense than they do with regard to assets and liabilities. An added reason for the greater lack of uniformity is the fact that much less emphasis is laid on the statement of income and expense in reports to stockholders, creditors, and others. Since less emphasis has been placed on it as a formal report, less attention has been given to its form and content. This has also discouraged firms from studying the statements of income and expense of other companies, and from profiting from their practices.

In the annual reports of corporations the balance sheet may be set forth in full, or, if condensed, supported by numerous schedules, whereas the statement of income and expense in such a report is rarely more than the briefest summary of results. For example, a recent annual report of the International Harvester Corporation devotes nine pages to a carefully drawn balance sheet and the accompanying schedules, while the "statement of income" occupies a scant half-page and starts out with the figure of net operating revenue. Some of the annual reports of corporations contain no statement of income and expense at all.

Although it is hardly safe to say that there is a standard form of statement of income and expense, it is true that the income and expense statements prepared for similar businesses by professional accountants have many points of similarity. Accountants usually agree on the general form of the statement, but disagree on the position of some items of income and expenses, especially the latter. The customary form for a manufacturing or mercantile firm is made to show the following:

1. Gross returns from the sale of the commodity or service offered for sale by the business.

2. Sales deductions. These are subtracted from gross sales to obtain *net sales*.

3. Cost of goods sold. This is subtracted from net sales to obtain *gross profit from sales.*

4. Operating expenses. These are subtracted from gross profit on sales to *obtain net operating profit.*

5. Non-operating income. This is added to net operating profit to obtain *gross income.* Items belonging to this group are sometimes termed "Other Income" or "Income Credits."

6. Non-operating expenses. These are subtracted from gross income to obtain *net income.* Items belonging to this group are sometimes termed "Deductions from Income" or "Other Charges."

There may be in addition to the foregoing a section for profit and loss credits and a section for profit and loss charges. When the former are added to net income and the latter subtracted from the resulting sum, the balance represents the *net income carried to surplus* or the *net deficit chargeable* to *surplus.* Some accountants do not show profit and loss charges and credits on the statement of income and expense, but transfer them direct to the surplus account, and show them on a surplus adjustment statement.

Gross Returns from Sales

There is seldom difference of opinion concerning the proper method of showing sales on the statement of income and expense. They are shown as the first item, and usually are shown gross, with the deductions from sales shown as a subtraction. The result is net sales. Sometimes only net sales are shown, the gross sales and deductions being omitted. This method conceals information of value to all inspecting the statement of income and expense. Consequently its use is not to be commended.

Other terms than gross sales may be used on the statement of income and expense of some types of organization. For example, *gross earnings* may appear as the first item on the statement of income and expense of a professional firm and *gross revenues* may appear as the first item on the revenue and expense statement of a governmental organization.

Deductions from Sales

There is not unanimity of opinion as to what should be included under this head. It is generally agreed that sales returns and sales allowances should be included here, since they represent a direct deduction from the contract sales price. Some accountants treat cash discounts on sales as a deduction from sales, but the majority treat them as non-operating expense. A few show them as an operating expense. The latter method seems preferable. An analysis of the reasons for offering cash discounts will show that the main reasons are: (1) to reduce loss on bad debts by receiving more prompt payment, and (2) to save interest charges by securing cash from customers before the expiration of the credit period. It seems logical, therefore, to place cash discounts in the same section of the statement of income and expense in which the items of loss on bad debts and interest are placed. For reasons stated later in this chapter, the author thinks that these latter items should be treated as operating expenses. It follows that he believes cash discounts should also be treated as an operating expense, and not as a deduction from sales or a non-operating expense.

Some accountants treat "freight out" as a deduction from sales. It is contended that if "freight in" is to be shown as an addition to purchases, it is logical to treat "freight out" as a deduction from sales. If freight out is paid by the vendor on all goods sold, there is some logic to this contention, for the vendor will probably add the amount of the freight to what would otherwise be the sales price. But if, as is usually the case, the vendor pays freight out only on occasional shipments and pays this as a concession to new customers or to customers who are secured in the face of stiff competition, it seems clear that this item is a selling expense somewhat similar in nature to advertising expense and should be so shown on the statement of income and expense.

Commissions are sometimes shown as a deduction from sales but it seems better to show them as selling expenses, since they represent a cost of securing the sales contract. Excise and revenue taxes imposed at the time of sale may properly be treated as deductions from sales. Usually the vendor adds the amount of these to the regular sales price of the article and thus shifts them to the buyer. The vendor consequently acts only in the capacity of a collecting agency for the government. Customs duties, such as those imposed by tariff laws, are a part of the cost of purchases and should be added to the invoice price.

Cost of Goods Sold

In a mercantile business there is a fair degree of unanimity concerning the elements entering into the cost of goods sold. Since the beginning inventory, plus purchases, less ending inventory, equals cost of goods sold, the only probable chance for a difference of opinion is with reference to the elements entering into cost of goods purchased. It is unanimously agreed that the invoice price plus inward freight and cartage are properly included. It is also agreed that purchase returns and allowances should be deducted from the invoice cost of purchases. There is a difference of opinion with reference to the treatment of cash discounts on purchases. Some contend that they are a deduction from purchases, the majority treat them as non-operating income and a few treat them as operating income. The author believes that the last method is preferable. If cash discounts on sales are to be considered as operating expense it seems logical to treat cash discounts on purchases as an operating income. Both sales and purchases discounts are typically a necessary and continuing consequence of the normal operations of a business. It seems entirely proper, therefore, to treat them as items of operating expense and income.

In a manufacturing business the elements of cost are materials, labor, and manufacturing expense. There is little difference of opinion concerning the first two items. The same elements enter into the cost of materials which enter into the cost of the finished product of a mercantile firm. The labor cost includes all wages paid to those engaged in the fabrication of the materials into the finished product which can be connected directly with the product. There are several questions with reference to the components of manufacturing expenses of which the most significant are the following:

1. Is interest on capital used in manufacturing operations an item of manufacturing cost?

2. Should any part of the general administrative expenses be allocated to manufacturing cost and shown as part of the manufacturing expenses?

The majority of accountants contend that interest is not an item of cost. They treat interest paid as a non-operating expense, and do not take cognizance of interest on capital owned by the business. Without entering at this time into the pro and con of the matter, it is the belief of the author that as a general rule the cost of capital must be considered before the true cost of operations can be ascertained, and that interest on capital used in carrying on production activities is a part of manufacturing cost, regardless of the ownership of the capital. Further consideration of this topic will be given in chapter xliv.

The majority of accountants agree that administrative expenses should not be allocated to production cost and with this opinion the author concurs. As explained in chapter i there are certain major functional divisions of administrative activities and it is desirable that the cost of each of these be shown separately, so that effective administrative control can be exercised over these costs. Such administrative control can be exercised in an effective manner only if each functional division or department is charged with the expenses over which it exercises control, and with no others. The production department has no control over administrative expenses; therefore, they should not be charged to production costs. Moreover, there is no rational basis upon which to allocate such expenses as between the production department and the other departments. This topic will be considered further in chapter xliv.

Operating Expenses

Accountants have long been accustomed to divide expenses into two major groups usually known as *operating* and *non-operating*, although other terms are sometimes used. Under operating expenses are included those incurred in carrying on the regular operations of the business, while under non-operating expenses are included those incurred in carrying on incidental operations. The expenses incurred by a merchant in the buying and selling of his merchandise are operating expenses. Expenses incurred by him in the buying and selling of bonds would be non-operating expenses, for it is not the function of a mercantile store to deal in bonds.

Although accountants usually accept in principle the foregoing classification of expenses, there is much evidence to indicate that it is not strictly followed by them in the preparation of income and expense statements. There is a decided tendency for them to place under non-operating expenses items of expense clearly the necessary consequence of carrying on the primary objects of the business. For example, such items as cash discounts on sales, interest on bonds and notes, and losses on bad debts are frequently shown as non-operating expense, yet the business ordinarily cannot attain the primary objects for which it is organized without incurring these expenses. Some even go so far as to show taxes, insurance, and depreciation as items of non-operating expense. The inconsistency of this practice seems too evident to require comment.

It is possible that this tendency is due, at least in part, to the inadequate classification of expense ordinarily shown on the statement of income and expense. Ordinarily all expenses which are considered before arriving at net operating profit are divided into three main groups: manufacturing, selling, and general administrative. Manufacturing expenses are shown as part of the cost of goods sold, while selling and general administrative expenses are shown as deductions from gross profit on sales. Because of the limited number of groups which this classification provides, items of expense are continually arising which do not logically fall within either of these groups. The accountant has found that the easiest way to solve the problem is to place these items under non-operating expense.

There is some tendency at present to place under operating expenses another group or class of expense which is sometimes termed "Financial Management Expense." Under this heading may be placed such items as interest cost, sales discount, bad debts, and collection and exchange. This is undoubtedly a tendency in the right direction and serves to confirm the suggestion previously made that one of the reasons for the placing of so many items under non-operating expense is the inelasticity of the customary classification of operating expenses. It is, of course, realized that some accountants hold to the theory that all items of expense arising in connection with the procurement and protection of capital are non-operating expenses and on this theory place such items as are suggested above as financial management expense under non-operating expense. The arguments pro and con on this subject will be indicated in chapter xliv in the consideration of the treatment of interest.

Objections to Customary Classification of Expenses

The customary classification of expenses as outlined in the preceding discussion has some value for control purposes, since it shows the expenses classified according to certain major groups of business activities. In some firms (especially small ones) without a well-defined organization, such a classification may serve satisfactorily. It may well be questioned, however, whether as a general practice it is sufficient. There are three objections to it:

1. It fails to recognize certain well-defined groups of activities such as are involved in the administration of personnel, finance, standards, and records, etc. This is probably due to the fact that these activities were not regarded as separate functions at the time the conventional classification of expenses became crystallized. In the early development of business organization, each department handled its own personnel problems; the president usually acted as treasurer, with an assistant who acted merely as cashier; the standards-and-records function was not sufficiently developed to make it seem expedient to establish a separate department for it. The cashier, sometimes called the treasurer, was usually in charge of the accounting and the cost of maintaining the scanty records kept was included as *administrative* expense.

2. It causes a great many items of expense, such as those mentioned above, to be lumped under the general head of *administrative* which are not under the direct control of the chief executive or his staff. This makes it impossible to exercise effective control either of these expenses, or of the expenses for which the chief executive and his staff are responsible. The chief executive and his staff should be held responsible for the expenses under his control, just as all other executives are held responsible.

3. It causes a number of items (considerable in total amount) to be placed under the general head of non-operating expense, without fixing definite responsibility for their incurrence. In many cases, items are shown as non-operating expenses which are clearly the natural and necessary consequences of the operations representing the primary purpose of the business. Illustrations

of such items will be given in the discussion of non-operating expense (see p. 199).

Suggested Classification

From the point of view of administrative control, expenses should be classified to conform with the organization of the business. In other words, expenses should be grouped according to units of responsibility, and the head of each executive unit should be held accountable for the expenses incurred in performing the activities he directs. A possible grouping of expenses for a business with a functional classification of administrative duties would be as follows:

1. Manufacturing expenses, or those incurred in the operation of the factory, and the production of the commodity or service which is offered for sale. These expenses would occur, of course, only in the case of a manufacturing business.

2. Buying expenses, or those incurred in purchasing the commodity offered for sale, or in purchasing the materials and supplies used in production. The cost incurred in buying the supplies used by all the various departments is also included under this head, but the purchase cost of the supplies is charged to the department using the supplies.

3. Selling expenses, or those incurred in the marketing of the product purchased or produced for sale.

4. Personnel expenses, or those incurred in the procurement and maintenance of an efficient working force.

5. Financial expenses, or those incurred in planning and controlling the receipt, custody, and disbursement of funds. The expenses incurred in the granting of credit and the collection of accounts are usually included in this group.

6. Controller's expenses, or those incurred in the performance of the standards-and-record function. Under this heading is included the expense of the accounting, statistical, and office manager's department, the expenses of establishing and enforcing

the procedures, in so far as this is done by the controller's department.

7. General office expenses, or those incurred in the general administration of the business and not chargeable to any of the foregoing groups. This group includes the expenses of the general manager and his staff.

8. General or unallocated expenses, or those not incurred as a result of the operations of any particular department, but which are necessary for the business to exist and operate as an entity. Directors' fees and expenses, capital stock tax, and income taxes are illustrations of such expenses. There may also be included in this group expenses which might logically be allocated to one of the foregoing groups, but which it is not expedient to so allocate because of the cost involved or because of their relative unimportance.

The foregoing is only suggestive of a grouping of expenses suitable to a business having a well-defined functional organization. Modifications will have to be made for different businesses. If there is no controller or personnel manager, it may be necessary to set up a group of expenses termed *auxiliary* expenses and include under this heading the cost of maintaining the accounting, statistical, office manager's, and employment departments. Other modifications will suggest themselves. It is of course understood that there will be various items of expense shown under each of the major groups given in the foregoing classification. The essence of this classification is the method of analysis and classification it illustrates, rather than the particular groupings it shows.

Non-operating Income

Income, like expense, may be divided into two major groups known as *operating* and *non-operating*. Operating income is that arising from the normal operations of the business—the operations the business was organized primarily to perform. Non-operating income is that arising from other than the regular operations of the business. To illustrate, the income received by a dry-goods merchant from the sale of merchandise is operating income. Income he receives from the sale of bonds he has purchased is non-operating income, for a dry-goods store is not organized to deal in bonds.

Many accountants include under non-operating income, income resulting directly from the necessary operations of the business, but not received from the returns from sales and consequently not included in gross profit from sales. There is the same objection to this practice that was urged in the preceding discussion against the customary classification of expenses, which shows as non-operating expense items that are the direct result of the normal operations of a business.

To indicate the nature of the items often shown as non-operating income the following list, taken from standard texts, is given:

1. Cash discount on purchases
2. Interest on notes or accounts receivable
3. Interest on bank balances (normal balance)
4. Profit from foreign exchange (arising from normal sales operations)
5. Interest on bonds owned
6. Dividends on stocks owned
7. Commissions received
8. Profit from sale of temporary investments
9. Royalties received
10. Income from real estate
11. Profit from sale of fixed assets

There is a distinct difference in the nature of the items in this list. The first four items are the direct and necessary result of the normal operations of the business and, therefore, should be treated as operating income. If a business is dealing in commodities where a cash discount is offered, the procurement of this discount is a normal result of its operations. If it is customary to take notes from customers in the trade in which the business is engaged, interest on these notes is an operating income. It is necessary for a business to maintain a bank balance, and interest on a normal bank balance is evidently operating income. Interest on excessive balances not necessary for a firm's operations may well be treated as non-operating income. Profit from foreign exchange arising from normal sales operations is also operating income, for it is the normal result of engaging in export trade. If trading in exchange is carried on which is not necessary for financing export sales, profit arising therefrom is non-operating income.

Items 5 and 6 are under some circumstances operating income, while under other circumstances they are non-operating income. If a business is holding bonds and stocks of subsidiaries in order to exercise effective control of their operations, and if this control is necessary for the continued prosperity of the holding company, interest and dividends received from these investments are operating income. If a company has surplus funds invested in the securities of other companies merely as a means of securing income, the income thus received is classed as non-operating. Of course in a bank or other financial institution, income from investments is operating income, for it is a primary purpose of the operations of such an institution to secure such income.

Items 7 to 11 inclusive are not usually the result of the normal operations of a mercantile or manufacturing business, but conditions can be conceived under which all of these are operating income. In some types of business, some of these items would be the main source of operating income. For example, commissions would be the principal item of income of a commission company. Income from real estate would be a principal item of income of a real estate organization owning and operating real estate properties.

It seems desirable to divide the items ordinarily grouped under *non-operating income* or *other income credits* into two groups.

The first group under the heading of *other income* may be shown on the statement of income and expense as an addition to gross profit on sales, prior to the subtraction of the operating expenses. The second group, under the heading of *non-operating income*, may be shown as an addition to net operating profit. The first group may appropriately be shown before deducting operating expenses, for some of these expenses are incurred in earning the income.

This method of showing these items is illustrated by the form of statement of income and expense given on page 205.

Non-operating Expense

The items placed under this heading should represent the expenses incurred in earning non-operating income. Many accountants also include in this group charges representing the cost of procuring capital, and miscellaneous expenses and losses of various kinds. To indicate the nature of the items which are often shown as non-operating expense the following list, taken from the statements in standard texts, is given:

1. Cash discounts on sales
2. Interest on bonds
3. Interest on notes and accounts payable
4. Uncollectible notes and accounts
5. Amortization of bond discount
6. Loss from foreign exchange
7. Income taxes
8. Loss from sale of securities
9. Loss from sale of real estate
10. Amortization of war facilities

In conformity with the preceding discussion, the author would regard items 1–7 inclusive as operating expense. Consequently he would show them on the statement of income and expense prior to the determination of net operating profit. Item 1 may be treated as a financial expense, being shown as a part of credit and collections expense. This is on the theory that the discount is allowed primarily as a protection against bad debts. On the other hand the interest element in cash discount may be a major factor in its allowance. In this case, the preceding treatment does not seem logical. If it is of sufficient amount to make it worth while, the discount may be analyzed so as to separate the bad debt element and the interest element. The former will be treated as a financial expense and the latter treated as are other interest items. If the amount is not sufficient to make an analysis desirable the whole amount may be shown as a general expense. Items 2–5 represent the cost of capital and should be allocated as a cost to the departments using the capital. As a matter of procedure, each department may be charged with interest on the capital which it employs in its operation and the corresponding credit made to an interest-earned account. The amount of items 2–5 will then be charged against the interest-earned account, the resulting balance giving the interest earned on the capital of the owners. In cases where it is not feasible to allocate interest to departments, it may be shown under general expenses.

Loss from foreign exchange may be treated as a cost of capital, or treated as a deduction from profits on export sales if the latter represent only a part of the operations of the business. Income taxes are a charge which must be paid if the business is to continue to operate. They, therefore, represent an operating expense. Since they cannot be allocated to departments they are shown as a general expense.

Items 8–9 would not usually arise as the result of the normal operations of a mercantile and manufacturing business, and they may be regarded as truly representative of non-operating expense. Expenses incurred in carrying investments not held for control purposes, and expenses incurred in securing capital with which to earn non-operating income are other examples of such expenses. Provision for amortization of war facilities should be treated as a profit-and-loss charge rather than a non-operating expense.

Profit-and-Loss Credits and Charges

These groups are intended to provide for the following: extraordinary profits and losses from the sale or other disposal of capital assets, i.e., permanent investments; original capital in the form of goodwill and organization expenses written off; premiums and discounts on the redemption of capital stock; distribution of profits; and items applicable to the operations of prior periods. The latter class is often treated as surplus adjustments, being applied to the surplus at the beginning of the year or shown separately, but no advantage is usually derived from such separation, as all the profit and loss items, with the exception of dividends, are, or should be, extraordinary. In the preparation of condensed statements, however, it is often convenient to show the surplus at the beginning of the period as adjusted.

There is a prevailing tendency to include in the "profit and loss" section charges and credits as applicable to prior periods when they are merely "lap-overs," that is, items which are constantly recurring but are seldom applicable to the period during which they are recorded. The effect is that these items are never comprehended in the income of any period. The most common instances are taxes, interest, uncollectible accounts, commissions, rebates on sales and purchases, legal expenses, and sundry adjustments of accruals. In the opinion of the author, all such items should be absorbed in the current accounts of the year if practicable. This can usually be done with propriety, except when the current year would be charged or credited with considerably more than a full year's proportion of such expenses or income.[1]

Illustration of Standard Form of Statement of Income and Expense

Sir Arthur Lowes Dickinson, C.P.A., in *Accounting Practice and Procedure*, offers a standard form of the statement of income and expense with suggested variations for different types of business. Because of the standing of Mr. Dickinson in the accounting profession in both the United States and England, this form may be taken as typical of that employed generally by practicing accountants. It is reproduced below.

[1] Bell, *Accountants' Reports*, pp. 103–4.

The forms up to the point where net profits are ascertained will be as follows:

Manufacturing and Merchandising:

Gross earnings from sales	......	
Less—Returns, allowances and discounts	......	
Net earnings from sales		......
Deduct—Cost of production of commodity or service		......
Gross profit		......
Deduct—Cost of selling	......	
Expenses of management	......	
Net profit from operations		......

Agency and Commission:

Commissions earned	......	
Deduct—Expenses of management		......
Cost of guarantees	......	......
Net profit from operations		......

Transportation:

Earnings from operations		......
Deduct—Operating expenses	......	
Taxes	......	......
Net profit from operations or operating income		......

Banking:

Earnings from—		
Interest	......	
Commissions	......	
Other profits	......	......
Deduct—Expenses of operation and management		......
Net profit from operations		......

Professional:

Gross earnings from fees	......	
Less—Out-of-pocket expenses included therein	......	
Net earnings from fees		......
Deduct—Expenses of operation and manage-management		......
Net profit from operations		......

The form for the remainder of the statement will be the same in all cases, viz.:

Net profit from operations	......	
Other Income	......	......
Deduct—Interest on bonds	......	
Other fixed charges	......	......
Surplus for the year		......
Extraordinary profits (detailed)		......
Surplus brought forward from preceding year		......
Deduct—Extraordinary charges		......
Total surplus available		......
Dividends on stocks		......
Surplus carried forward		......

Illustration of Detailed Statement of Income and Expense

A more comprehensive illustration of the standard form of statement of income and expense, showing in some detail the various items which may appear on it, is given below.

THE BLANK MANUFACTURING COMPANY[1]

STATEMENT OF INCOME AND PROFIT AND LOSS FOR THE YEAR ENDED DECEMBER 31, 1919

GROSS SALES		$5,693,766.29
DEDUCTIONS FROM SALES:		
Returns and Allowances	$ 96,843.31	
Outward Freight	120,225.27	
Total		217,068.58
NET SALES		$5,476,687.71

[1] Taken from *Accountants' Reports* by William H. Bell.

Cost of Goods Sold:		
Manufactured Goods:		
Materials and Supplies Purchased	$2,255,875.61	
Less Increase in Inventory . .	193,417.62	
Materials and Supplies Consumed	$2,062,457.99	
Inward Freight and Cartage . .	17,696.35	
Salaries and Wages	1,718,004.09	
General Manufacturing Expense .	125,980.15	
Depreciation	389,543.30	
Decrease in Inventory of Work in Process	104,212.96	
Total Cost of Manufacture . . .	$4,417,894.84	
Less Increase in Inventory of Finished Goods	12,101.49	
Total Manufactured Goods . . .	$4,405,793.35	
Purchased Goods	53,483.54	
Total Cost of Goods Sold .		$4,459,281.89
Gross Profit from Sales		$1,017,405.82
Selling Expenses:		
Salaries	$ 123,745.85	
Commissions	50,550.91	
Traveling and Entertainment . . .	24,251.13	
Advertising	29,313.72	
General	31,922.43	
Total		$ 259,784.04
Selling Profit		$ 757,621.78
General Expenses:		
Salaries	$ 52,164.37	
Professional Fees and Expenses . .	8,396.74	
Other	34,347.97	
Total		94,909.08
Net Profit from Sales		$ 662,712.70

OTHER INCOME CREDITS:		
Income from Investments	$ 16,284.41	
Other Interest	12,119.25	
Cash Discounts on Purchases . . .	11,900.23	
Miscellaneous	5,020.94	
Total		$ 45,324.83
GROSS INCOME		$ 708,037.53
INCOME CHARGES:		
Provision for Federal Taxes . . .	$ 200,050.00	
Cash Discounts on Sales	120,317.92	
Interest on Notes Payable	26,707.25	
Doubtful Accounts Written Off . .	7,412.72	
Miscellaneous.	19,286.29	
Total		$ 373,724.18
NET INCOME		$ 334,313.35
SURPLUS, JANUARY 1, 1919		$ 678,250.60
OTHER PROFIT AND LOSS CREDITS:		
Adjustments Applicable to Prior Periods	14,454.27	
Profit from Sale of Real Estate . .	18,025.35	32,479.62
GROSS SURPLUS		$1,045,043.57
PROFIT AND LOSS CHARGES:		
Dividends	$ 300,000.00	
Loss on Machinery Scrapped . . .	45,242.43	
Additional Federal Taxes for the Years 1913 to 1917, inclusive	75,614.91	
Total		420,857.34
SURPLUS, DECEMBER 31, 1919		$ 624,186.23

Suggested Standard Form

A statement of income and expense made in accordance with the suggestions offered in this chapter, but in condensed form, would be as follows:

THE BLANK MANUFACTURING COMPANY

Statement of Income and Expense for the Year Ended December 31, 1919

Gross Sales		......
Deductions from Sales:		
Sales Returns	......	
Sales Allowances	......	......
Net Sales		......
Cost of Goods Sold (Appropriate details)		......
Gross Profit on Sales		......
Other Income:		
Interest on Notes Receivable	......	
Interest on Bank Balance	......	
Purchases Discount	......	......
Gross Income		......
Operating Expenses:		
Buying Expenses	......	
Selling Expenses	......	
Personnel Expenses	......	
Financial Expenses	......	
Controller's Expenses	......	
General Office Expenses	......	
General Expenses	......	......
Net Operating Income		......
Non-Operating Income:		
Interest on Bonds Owned (Not for control purposes)	......	
Income from Real Estate	......	
Profit from Sale of Temporary Investments	......	......
Net Operating Income plus Non-Operating Income		......
Non-Operating Expenses:		
Loss from Sale of Temporary Investments	......	
Loss on Sale of Real Estate	......	
Taxes on Real Estate Held for Rent (Not used in regular business)	......	......
Net Income from All Sources		......

Profit and loss credits and charges, whenever such items occur, should appear as two final sections of the statement shown on page 206. Details are shown in this statement only when they are necessary to illustrate variations from the orthodox form. The form of statement of income and expense given on page 206 is not in accordance with that usually employed by the practicing accountant. Nevertheless, the author ventures to offer this form as one which presents income and expense data in a form most useful for business control by executives.

Condensed Statement of Income and Expense

The statement of income and expense given on pages 203, 204, 205, indicates that numerous items of expense and income may arise in connection with the operations of a business. Many items in addition to those shown in this illustration arise in the typical business. In a manufacturing business these items become especially numerous. If all these items are shown on the statement of income and expense it may become very lengthy and difficult to read, and the main facts are likely to be obscured by the details. It is a prevalent custom of accountants, therefore to reduce the statement of income and expense to the main data and to supplement this brief statement with *schedules* showing the details. In pursuance of this practice there may be prepared a schedule of the cost of goods sold, a schedule of operating expenses, a schedule of non-operating income, etc.

Illustration of Schedules

Since the "Cost of Goods Sold" is usually the largest section of the statement of income and expense of a manufacturing firm, it is usually the first section to be placed in schedule form. The possible contents of such a schedule are indicated on page 208.

BLANK MANUFACTURING COMPANY

Cost of Goods Sold for Year Ended December 30, 1922

Materials and Supplies Purchased	......	
Inward Freight and Cartage	......	
Total Cost of Purchases	......	
Less Increase in Inventory	......	
Materials and Supplies Consumed		......
Direct Labor Consumed		......
Factory Expenses:		
Superintendent and Foremen	......	
Factory Office Salaries	......	
Factory Office Supplies	......	
		......
Receiving Department Expenses		......
Stores Department Expenses		......
Stock Department Expenses		......
Power, Heat and Light:		
Fuel	......	
Wages	......	
Oil, Waste, etc.	......	
Current Purchased	......	......
Repairs:		
Building	......	
Machinery and Equipment	......	......
Depreciation:		
Building	......	
Equipment	......	......
Janitors, Watchmen, etc.		......
Property Taxes		......
Insurance		......
Unemployed Time		......
Inspection		......
Defective Goods		......
Experimental Expense		......
Infirmary		......
Interest on Investment in Factory		......
Miscellaneous	......	
Total Factory Expenses		......
Total Material, Labor and Factory Expenses		......
Less:		
Increase in Inventory of Work in Process		......
Total Cost of Manufacture		......
Add:		
Decrease in Inventory of Finished Goods		......
Manufacturing Cost of Goods Sold		......

Other Schedules

Various other schedules may be prepared. These are of the same general nature as that showing the cost of goods sold. They all serve the same function, namely, to give a complete report of the factors entering into the final result. Consequently, a schedule of operating expenses may include a detailed tabulation of selling expenses showing, for example, the amount paid for sales salaries and how much of this was paid for sales managers, for salesmen, and for sales clerks. Under advertising expense may be given an itemized account of the outlays for each kind of advertising as for local media, newspapers of other cities, periodicals, bill posters, etc. In addition to schedules of this kind, an analysis may be made of any item where specific or extraordinary information is needed. To illustrate, the general manager and sales manager would be interested in data of various kinds concerning sales by departments, if the business were so organized; by geographical districts, if sales plans were based on a territorial division; or by branches, if more than one sales plant is maintained. In later chapters the various reports which may be used in controlling departmental activities will be considered.

Illustration of the Condensed Statement of Income and Expense

The nature of the condensed statement of income and expense can be well illustrated by use of the statement given on pages 203–5. Reduced to the major facts which it shows, the statement of income and expense of the Blank Manufacturing Company will appear as shown on page 210.

This statement is made to correspond in form with the one given on pages 203, 204, 205. The changes necessary to make this statement correspond with the suggested form given on page 206 are apparent.

THE BLANK MANUFACTURING COMPANY

CONDENSED STATEMENT OF INCOME AND EXPENSES FOR THE YEAR ENDED DECEMBER 31, 1919

Gross Sales	$5,693,756.29
Deductions from Sales	217,068.58
Net Sales	$5,476,687.71
Cost of Goods Sold	4,459,281.89
Gross Profit on Sales	$1,017,405.82
Selling Expenses	259,784.04
Selling Profit	$ 757,621.78
General Expenses	94,909.08
Net Profit on Sales	$ 662,712.70
Other Income Credits	45,324.83
Gross Income	$ 708,037.53
Income Charges	373,724.18
Net Income	$ 334,313.18
Surplus, January 1, 1919	678,250.60
Other Profit and Loss Credits	32,479.62
Gross Surplus	$1,045,043.57
Profit and Loss Charges	420,867.34
Surplus, December 31, 1919	$ 624,186.23

Statements of Income and Expense in Corporation Reports

Corporations in their annual reports rarely present a complete statement of income and expense. Usually they include (*a*) a condensed summary of income and its disposition and (*b*) an analysis of the surplus account showing the increases and decreases which have taken place in it during the year. As an illustration of the content of these statements there is shown below the Consolidated Profit and Loss Account and on page 212 the Consolidated Surplus Account of the American Ship Building Company as shown in its annual report for the year 1918.

CONSOLIDATED PROFIT AND LOSS ACCOUNT
THE AMERICAN SHIP BUILDING COMPANY
AND SUBSIDIARY COMPANIES

FOR THE FISCAL YEAR ENDED JUNE 30, 1918

Earnings of All Properties:				
After deducting Manufacturing Expenses				$16,206,661.87
Other Income:				
Dividends received from outside Investments			$ 38,500.00	
Profit on Securities sold during year . .			3,542.86	
Interest Earned			375,680.76	
Miscellaneous Earnings and Sundry Profit and Loss Items . . . . .Net			442,805.68	860,529.30
				$17,067,191.17
Administrative and General Expenses:				
General Office Expense, including Traveling and Legal Expense, Salaries, Insurance, etc.			$1,931,640.88	
Other Deductions:				
Taxes:				
State, County and Misc.	$ 207,923.94			
Excess Profits for the 12 months ended Dec. 31, 1917	$1,736,240.49	$1,944,164.43		
Maintenance of Machinery and Equipment		$1,246,366.87		
Maintenance of Buildings and Docks		220,050.65		
Miscellaneous Maintenance .		257,040.68		
Amortization of Permanent Assets to Pre-War Values at Dec. 31, 1917		147,815.47		
Depreciation		693,846.68		
Reserve for Income and War Profits Tax Estimated . .		4,000,000.00	$8,509,285.78	$10,440,025.66
Net Addition Transferred to Surplus for Fiscal Year Ended June 30, 1918				$ 6,626,265.51

The following shows the analysis of Surplus Account which is often included in corporation reports:

CONSOLIDATED SURPLUS ACCOUNT

THE AMERICAN SHIP BUILDING COMPANY
AND SUBSIDIARY COMPANIES

JUNE 30, 1918

Surplus July 1, 1917—as shown by Report of auditors							$5,147,563.98
Addition for Year							
Net addition for fiscal year ended June 30, 1918, transferred from Consolidated Profit and Loss Account						$6,626,265.51	
Dividends:							
Date							
Declared	*Payable*	*Rate*					
Preferred:							
9-26-17	11-1-17	1¾%	$138,250.00				
12-19-17	2-1-18	1¾%	138,250.00				
12-19-17	5-1-18	1¾%	138,250.00				
12-17-17	8-1-18	1¾%	138,250.00	$ 553,000.00			
Common:							
9-26-17	11-1-17	1½%	$114,000.00				
12-19-17	2-1-18	4¼%	323,000.00				
3-28-18	5-1-18	4¼%	323,000.00				
6-26-18	8-1-18	3¾%	513,000.00	$1,273,000.00	$1,826,000.00		$4,800,265.51
Surplus June 30, 1918							$9,947,829.49

Valuation of Income and Expense Items

It is especially important that care be used to state at their correct amount the items of income and expense appearing on the statement of income and expense. Unless this is done, the statement is not only worthless; it may be actually harmful, for it may lead to erroneous conclusions and to improper actions based on these conclusions. Considerable attention has been given in this chapter to the form of the statement of income and expense, but it should be evident that correctness of form can in no way recompense for inaccuracies in valuation of the items.

Considerable attention will be given to the analysis of income and expense items in the following chapter. That discussion will inevitably lead to a consideration of the valuation of the several items. However, a few general principles governing their valuation can well be stated at this time:

1. Income should not be anticipated, but provision should be made for all probable expenses. To illustrate, care must be exercised in valuing inventory and investments so as not to take cognizance of increases in value due to changing market prices, not yet realized. Equal care must be exercised to make provision for depreciation of fixed assets, or for permanent decreases in value of investments.

2. All accrued income and all accrued expenses should be shown in their proper amount. Care must be exercised to include all such items as accrued wages, accrued taxes, and accrued interest receivable and payable.

3. All deferred expenses and deferred income should be excluded. Care must be exercised in handling prepaid insurance, prepaid interest, prepaid subscriptions to periodicals and magazines, prepaid advertising, etc.

4. All income and expense items should be valued from the point of view of a going concern. This statement is complementary to the one made in connection with the balance sheet that all assets and liabilities should be valued on a going concern basis.

5. All items of income and expense should be shown at their gross value, and not offset against each other. To illustrate, interest earned should not be offset against interest cost; purchases discount should not be offset against sales discount; and only the net amount shown on the balance sheet. Both items must be shown in order that a proper valuation of the factors they reflect can be formed.

QUESTIONS FOR CLASS DISCUSSION

1. How do you account for the various titles by which the Statement of Income and Expense is known?
2. "Businesses differ more in the nature of their incomes and expenses than they do in the nature of their assets and liabilities." Why is this true?
3. Why is less information given in the annual reports of corporations concerning income and expenses than concerning assets and liabilities?
4. What is your opinion of the "profit-and-loss account" of the American Ship Building Company, as shown in statement on page 211. What reasons can you give for the classification of items shown in this profit-and-loss account?
5. In what way does the statement of income and expense of a manufacturing firm differ from the statement of income and expense of a mercantile firm?
6. Can you suggest any items in statement on pages 203, 204, 205, which may be shown differently from the way they are given?
7. Explain the purpose and construction of the condensed form of statement of income and expense.
8. Explain how the following items should be shown on the statement of income and expense:
   (1) Provision for bad debts
   (2) Interest on bonds
   (3) Interest on bank deposits
   (4) Depreciation on office building
   (5) Depreciation on factory building
   (6) Depreciation on machinery
   (7) Depreciation on furniture and fixtures
   (8) Insurance on finished goods
   (9) Insurance on raw materials
   (10) Insurance on buildings
   (11) Income taxes
   (12) Discount on purchases
   (13) Discount on sales
   (14) Dividends
   (15) Profit from sale of real estate
   (16) Loss on machinery scrapped
   (17) Assessment for federal taxes for previous periods
   (18) Professional fees such as those of attorneys and accountants

(19) Commission paid to agents
(20) Freight and goods sold
(21) Bonuses to employees
(22) Freight on returned sales
(23) Loss arising from goods destroyed by fire
(24) Income on investments
(25) Traveling expenses of purchasing agent

9. "Income and expense may be regarded as interacting forces one tending towards an increase of net profit and the other tending towards its decrease." What does this mean? Is this statement strictly correct?
10. Give the different ways in which cash discounts may be shown on the statement of income and expense. Give the advantages and disadvantages of each method.
11. What arguments can you advance for and against including the following as items of manufacturing cost (*a*) interest, (*b*) administrative expense.
12. "The classification of expenses as operating and non-operating is useful in judging earning capacity of a business, but it is not sufficient to serve as a basis for administrative control of expenses." Why is it useful? Why is it not sufficient?
13. "Expenses should be grouped according to units of responsibility and the head of each unit held accountable for the expenses incurred in performing the activities which he directs." What does this mean? Can all expenses be classified on a basis of responsibility?
14. "Amortization of war facilities should be treated as a profit and loss charge rather than a non-operating expense." Why is this true? Why not treat it as an operating expense?

EXERCISE NO. 12

From the data given in Exercise No. 9, prepare a statement of income and expense for: (*a*) E. C. Cline, sole proprietor; (*b*) Cline & Reighard, the partnership; (*c*) The Cline–Reighard Furniture Company. You are to supply both the items and the amounts. Be careful to include all items which should be on the statement of income and expense of the type of business represented. Provide for reasonable ratios between the various items.

EXERCISE NO. 13

From the data given in Exercise No. 11 (*a*) prepare a statement of income and expense for F. M. Jones, (*b*) prepare journal entries to close the accounts of F. M. Jones.

EXERCISE NO. 14

Prepare a statement of income and expense from the data given in Exercise No. 10.

EXERCISE NO. 15

Restate the statement of income and expense given on pages 203, 204, 205, making any changes you think desirable.

REFERENCES FOR FURTHER STUDY

1. Kester, *Accounting Theory and Practice*, chap. xxvii.
2. Paton and Stevenson, *Principles of Accounting*, chap. xxv.
3. Bell, *Accountants' Reports*, chap. iii.
4. Hatfield, *Modern Accounting*, chap. xv.

CHAPTER XI

ANALYSIS OF FINANCIAL STATEMENTS

Basis for Interpretation and Use of Financial Statements

If financial statements are to be properly interpreted and used, it is necessary

1. That the statements be drawn in the proper form with a desirable classification of the items appearing on them.

2. That the items appearing on the statements be correctly stated both as to amount and as to title.

3. That proper comparisons be made to determine the present financial condition as shown by the current statements, and to indicate the changes in financial condition from that shown by previous statements.

In chapters ix and x some attention was given to the general principles which should govern the valuation of balance sheet and income and expense items and brief consideration was given to the analysis of the information ordinarily contained under each of these items. This chapter carries this study farther, and examines critically each of these items with the object of illustrating how the balance sheet and statement of income and expense should be analyzed by their readers. The following chapter (xii) will deal with the method of interpreting the information contained in these statements.

The discussion in chapters xi and xii is confined to the balance sheet and statement of income and expense for reasons stated in chapter viii. The method of analyzing and interpreting financial statements, as illustrated in these chapters, can be applied by the student to the various reports discussed subsequently.

Cash

The cash item shown on the balance sheet should represent cash on hand and cash on deposit in the bank. On a detailed balance sheet these may be shown as separate items if desired. By cash on hand is meant that in the cash drawer. In case there are cash funds maintained at the branch offices, the amount of these funds should be shown as a separate item. Cash on hand should represent currency and checks which have been received and not yet presented for payment. It should not include dishonored checks, due bills, or I.O.U's received from employees.

The cash in the bank should represent funds on deposit which are subject to withdrawal without notice. Time deposits should be shown as a separate item. All outstanding checks should be subtracted in determining the balance on deposit. Although these checks may not have been presented for payment, the funds which they represent are no longer available for the use of the issuing company. Overdrafts at the bank should be shown as current liabilities, and overdrafts at one bank should not be offset against deposits in another.

The cash on hand ordinarily should represent only a small per cent of the total cash of the company. All cash received should be deposited daily, and only a small amount withdrawn for use as petty cash. When funds are received for special purposes, they should be shown separately. For example, cash set aside under a sinking-fund agreement, or cash contributed by stockholders to be used for a specific purpose should not be shown as a part of the general cash balance.

Notes Receivable

The notes received from customers in payment of merchandise should be shown as an item separate from the notes received from any other source. If notes are received from officers and employees, or from subsidiary companies, these must be shown separately. If notes have been pledged as collateral for loans, the amount of such notes should be shown as a separate item, and the liability for which they serve as security should be indicated. Notes past due should be so stated. On a balance sheet made for credit purposes, it may be desirable to show the notes past due under a separate classification. This method of classifying the notes receivable is shown on page 170. Notes having a maturity date more than one year in advance should not be classed as current assets.

Sometimes notes received from customers are discounted at banks. In this case, the company offering the notes for discount is required to indorse them. It thus becomes contingently liable for their payment. The method of showing this contingent liability on the balance sheet has been discussed on page 169. When the amount of the notes receivable shown on the balance sheet is very small in comparison with the amounts shown on previous balance sheets, it is an indication of the probability that notes have been discounted. A careful investigation should be made to determine whether this is the case.

Accounts Receivable

The accounts receivable should be classified to show the accounts that are (*a*) owing from customers for merchandise; (*b*) owing from employees or officers for advances made to them; (*c*) owing from subsidiary companies or branches for merchandise shipped to them, or advances made to them; (*d*) owing from any other source.

There are two reasons why this classification is desirable:

1. If customers do not pay their accounts, collection can often be secured from them by legal process, while it is usually not expedient to bring legal action against employees or subsidiary companies.

2. In determining the ratio of accounts receivable outstanding to sales, the purpose of which will be discussed in chapter xii, it is necessary that only the accounts receivable arising from

sales be used. Showing these as a separate item facilitates this comparison.

Past-due accounts should be stated separately from the accounts receivable not yet due. In making a balance sheet for credit purposes, it may be desirable to classify the current assets so as to show both past-due accounts and past-due notes separately for those not yet due.

In this case, the current assets may be shown as follows:

Current assets		
Quick		
Cash	......	
Notes receivable, not due . . .	......	
Accounts receivable, not due . .	......	
Inventories	......	......
Slow		
Notes receivable, past due . . .	......	
Accounts receivable, past due .	......	......
TOTAL CURRENT ASSETS . .		......

When this form is used it is somewhat awkward to show a reserve for bad debts, since this reserve applies to both the receivables not due, and those past due. Probably the most convenient way is to show the reserve as a deduction from total current assets.

Business firms sometimes discount their accounts receivable. During the past few years companies have been organized which discount accounts receivable in a manner similar to the way banks discount notes receivable, and business firms in need of cash make use of their services. When a firm discounts its accounts receivable, it is contingently liable for their payment, just as it is contingently liable for notes discounted. This contingent liability may be shown on the balance sheet in the manner indicated on page 170.

All accounts ascertained to be worthless should be charged off the books and not shown on the balance sheet. Adequate provision for probable losses on the remaining accounts should be made by a reserve for bad debts, and the amount of this reserve should be shown on the balance sheet as a deduction from accounts receivable.

Inventories

On the balance sheet of a trading concern only the item of finished goods will be shown under inventory. On the balance sheet of a manufacturing concern, there will appear the three items of raw materials, goods in process, and finished goods. In connection with all inventories, careful attention should be given to three things: (1) quantity, (2) quality, (3) price.

With reference to quantity, only the commodities to which the business has full and valid title should be included in the inventories. Goods received on consignment should not be included. Goods shipped on consignment, and not yet sold should be included, since the title to them is still vested in the consignor. Goods sold but not yet shipped are normally included in the inventory, and goods purchased but not yet received are usually excluded.

Only such goods should be included in the inventory as are of such quality that they have some salable value. Goods which have deteriorated to such an extent that they can no longer be offered for sale, or which have become obsolete, should not be included. The quality of the goods must be considered also in determining the price at which they should be inventoried. Although they may have some salable value, this may be much below their original value.

Inventories should normally be valued for balance-sheet purposes at cost or market, whichever is the lower. Conditions under which the foregoing rule would not be applicable will be considered in a subsequent chapter. By cost is meant the invoice price plus all expenditures incurred in placing the commodity in a condition to be sold. For example, the freight, drayage, and unpacking cost should be added to the invoice price. By market price is meant the present cost to replace the article—not the price at which it may be sold. The goods in process can hardly be said to have a market price. The proper rule to follow is to determine the cost of replacing the goods in their present stage of manufacturing, and if this is less than present cost, the replacement cost should be used.

It is especially important that the inventories be stated accurately. On the balance sheets of many concerns, the inventory represents fifty per cent of their current assets. It can easily be seen that if the inventory is stated incorrectly, the financial condition of a firm will be markedly affected.

Accrued Income

At the end of the fiscal period, there may be certain items of accrued income, such as interest on notes receivable or interest on bank balances, which should be treated as assets on the balance sheet. Since such items are usually due and payable within a relatively short time, they may be shown as current assets. Care should be exercised to state such items at their proper amount, and to include only such items as may reasonably be expected to be collected. Accrued items receivable should be written off when they are proven uncollectible.

Investments

Many companies own stocks or bonds of other companies, or bonds of the United States government. Securities of other companies may be purchased to hold as an investment, or they may be purchased to exercise control over the operations of the issuing corporation. Probably not many industrial or mercantile firms very frequently purchase securities for investment purposes.

Most firms have outstanding interest bearing liabilities, or liabilities which are subject to a discount for prompt payment.

It is usually more profitable to use funds in paying off these liabilities than to invest them in the securities of other corporations. Banks, insurance companies, and similar institutions do purchase securities for investment purposes, for by the very nature of their operations they are required to use some of their funds in this manner. For stock brokers and investment bankers, securities are stock-in-trade.

Care should be exercised in determining the quality of the investments which a company owns. Securities, like receivables, may become doubtful, or worthless. The worthless ones should be written off. The doubtful ones should be so indicated, and valued accordingly. For balance-sheet purposes, stocks are valued on a different basis from bonds. The method of valuing each is discussed in considerable detail in chapter xl. It will suffice for our present purpose to point out that stocks are usually valued on the balance sheet at cost unless the present market value is below the cost price. In this case, they may be marked down to market value, or a reserve may be set up for the difference between the cost and market price. In case of a slight fluctuation between the cost price and market value, the securities may be shown at cost, and the market price shown in brackets immediately after the title of the investment. Bonds purchased as temporary investments are valued in the same manner as stocks. Bonds held for permanent investment are valued at cost plus the amortized discount, or less the amortized premium. Firms such as banks and brokers, which deal in securities, value them the same as stock-in-trade—at cost or market, whichever is the lower. In some states insurance companies are required by law to value their security holdings at market price, or market price with certain adjustments.

Deferred Charges

Deferred charges of two kinds may appear on the balance sheet, deferred charges to expense, and deferred charges to profit. Deferred charges to expense are the most frequent type. Prepaid insurance, prepaid taxes, and prepaid interest are the usual illustrations of this type. Inventories of supplies which are not to be sold, but are to be used in the operation of the business, may well be included under this heading, although some accountants place these items under inventories.

The expenses incurred in the organization of a corporation should not be shown as deferred charges to expense. Under no conditions should they be charged to expense after they are once set up on the books. Of course, small items of this nature may be absorbed in the expenses of the period in which they occur. If it is desired to write off organization expenses, they should be charged to profit and loss. Consequently, during the period they remain on the balance sheet, they should be shown as the last item among the assets under the heading of deferred charges to profit and loss. If a firm adopts the policy of not writing off organization expenses, their amount should be shown on the balance sheet as an intangible asset.[1]

Care should be taken to see that items rightly treated as an expense of the period when incurred are not carried forward under the heading of deferred charges. It is easy for a firm to find reasons why expenses may be treated as deferred charges. Consequently, there is a tendency to postpone the charging off of items. Care should also be used to see that the deferred charges are properly calculated, so as to provide for an equitable distribution as between periods.

Equipment

Equipment can usually be divided into three classes consisting of office equipment, factory equipment, and delivery and transfer equipment. A detailed consideration of the valuation of equipment will be given in chapters xxxv and xxxvi. The reader of the balance sheet should take care

1. That all equipment is recorded at cost at the time of its acquirement. If purchased, its cost will be the invoice price

[1] Many accountants think that organization expenses should be written off over a period of from three to five years.

plus the expenses incurred in putting the equipment in the position and condition necessary for it to serve its purpose. If manufactured, its cost is the cost to produce plus the expenses of putting it in the desired condition and position.

2. That only bona fide additions and betterments have been added to the cost price, and that all repairs have been charged to expense.

3. That proper allowance has been made for depreciation, and that appreciation has not been taken up.

4. That any liens or mortgages outstanding against the equipment are properly shown.

Some firms, especially financial institutions, sometimes write off their office equipment, or at least write it down so that it is carried at a nominal sum. Although this is a conservative practice, it is doubtful if it correctly shows the financial condition or the earnings of a firm.

Buildings

The value of the buildings owned by a business should be shown separately from the value of the land on which they are situated. The buildings are subject to depreciation, require repairs, and should be protected by insurance. The land is not subject to depreciation, requires no repairs, and not being subject to destruction, need not be insured. When the buildings are shown as a separate item, it facilitates the determination of the adequacy of the depreciation allowed, the repairs made, and the insurance incurred. Sometimes the term Real Estate is shown on the balance sheet, but this is not desirable, for this term is not accurately descriptive of either land or buildings.

Land

Only the land to which a business has title should be shown on its balance sheet, and any liens against it should be clearly shown. The original cost of the land is the correct basis for its valuation. Cost includes price paid to vendor, plus all expenditures necessary to make land suitable for the purpose for which it is desired. In some cases, expenditures resulting in the addition of certain facilities to the land such as walks, trees, etc., may better be shown as a separate item under the heading of Improvements, rather than as additions to value of land.

Land is ordinarily not subject to depreciation. In some cases its value may be decreased because of market conditions, and it may be desirable to reflect this decrease in value in the accounts. The reader of the balance sheet should not take it for granted that land valued at cost reflects its correct value for balance-sheet purposes. Increase in the value of land due to market conditions should be shown in the accounts only under exceptional conditions. What these conditions are will be considered in a subsequent chapter.

Land used for plant purposes should be clearly distinguished from land held for investment. The carrying charges on land held for investment can usually be added to its cost. Limitations on this practice will be discussed later. (See chap. xxiv.)

Intangible Assets

The intangible assets of the most frequent occurrence are good-will and patents. Sometimes good-will is shown as a fixed asset, but it is preferable to show it under a separate heading. It may be subtracted from the surplus of the company, as shown by the balance sheet prescribed by the Federal Reserve Board (see page 171). Patents are also shown as fixed assets on some balance sheets, but it is preferable to show them separately, for fixed assets are subject to more or less accurate valuation, while it is very difficult to obtain the value of such intangible assets as good-will and patents. It assists the reader of the balance sheet to have the two kinds of items listed separately.

Notes Payable

Notes payable should be classified to show the notes (*a*) due to merchandise creditors; (*b*) due to banks; (*c*) due to note brokers; (*d*) due to others, subdivided, if needed, to show to whom they are issued. This classification indicates the method by which a business finances its operations. In many firms a large item of notes due to creditors is open to suspicion. It may indicate the issuance of notes in payment of overdue accounts. But in those businesses in which it is customary to issue notes in payment of merchandise, it is expected that the balance sheet will show a large item of notes issued to merchandise creditors. Nearly all business firms borrow from banks to some extent. When a liberal rate of discount is offered on purchases, it is often profitable to borrow from the bank and take advantage of the discount. A large number of notes due to banks with a small corresponding amount of notes due to creditors may indicate sound financing.

During recent years many firms have sold notes to note brokers. Banks formerly looked with disfavor on this procedure. During recent years they have come to regard this practice with greater favor, due, probably, to the fact that the note brokers borrow from the banks the funds they use. Consequently, the banks do not lose because of the fact that their customers borrow from the note brokers.

Notes issued to officers of the company may indicate that the business has some difficulty in obtaining funds, and that the officers are forced to come to its rescue. In any case, the amount of such notes should be shown separately. Sometimes notes are issued for other purposes. In such cases, the parties to whom issued, and the purpose for which issued, should be made clear. The reader of the balance sheet should always insist upon an analysis of all notes outstanding.

Accounts Payable

Accounts payable should be classified to show the accounts (*a*) due to merchandise creditors; (*b*) due to others. The last group may be subdivided to show to whom they are due.

The reason for this classification of accounts payable should be apparent from the discussion of the classification of notes payable. If any of the accounts payable are secured by the pledging of assets as collateral, this should be shown on the balance sheet. Accounts payable or notes payable having a maturity date more than one year from the date of the balance sheet need not be shown as current liabilities.

Accrued liabilities may arise because of wages, interest, taxes, and similar items, accrued but not yet due at the date of the balance sheet. Of recent years accrued taxes is one of the most important of the accrued liabilities; and is the one which some firms fail to show on their balance sheets. Since accrued items are rarely evidenced by notes, and are usually payable in a short time, they should be shown as an accounts payable under current liabilities. They should, however, be shown separately from the accounts payable arising from other sources.

Bonds and Mortgages Payable

Bonds payable should be shown as a liability, and not as a deduction from the asset on which they are a lien. Some firms subtract their bonds payable from the assets serving as a security for them, and show the equity as an asset. This method does not show the true financial condition of the business. It is desirable, however, to indicate the assets on which the bonds are a specific lien, by the use of proper explanatory notes. It may be, of course, that the bonds are a general lien on all the assets of the business.

The nature of the bonds should be clearly indicated on the balance sheet by the use of an appropriate title. To illustrate, an issue may be described thus: "First Mortgage, six per cent 20 Year Bonds." The relation of the bonds outstanding to the total authorized should be shown. This can be accomplished by showing first the total authorized and subtracting therefrom the amount in treasury, thereby arriving at the amount outstanding. This is extended into the liability column. When serial bonds providing for the payment of a certain amount each year are issued, the amount falling due within the year should be shown as a separate item, since provision must be made for its payment within the specified time.

Mortgages payable, like bonds payable, should be shown as a liability, and not as a deduction from the asset on which they are a lien. It is well to indicate on the balance sheet the particular assets serving as security for the mortgages payable.

Contingent Liabilities

Full information concerning all contingent liabilities should be shown on the balance sheet. Such contingent liabilities may arise because of notes receivable discounted, accounts receivable sold, or suits pending which may result in a judgment against the firm. Where there is a considerable probability of an adverse decision of the pending suit, a reserve should be set up to provide for the liability arising from this decision. The method of showing contingent liabilities has been explained on page 169.

Proprietorship

The proprietorship of a corporation may be represented by three items: (*a*) the capital stock outstanding; (*b*) the accumulated surplus; (*c*) reserves which represent appropriated surplus. The capital stock should be shown at its book value. Treasury stock should be subtracted from the balance of the capital-stock account, and the difference shown as a part of proprietorship. Cognizance should be taken of any discount or premium on stock which may appear in the accounts. The different classes of stock should be shown as separate items. For example, the amount of the preferred stock, and the amount of the common stock should be shown separately, and if different classes of preferred and common are outstanding, the amount of each subclass should be given. If no-par value stock is outstanding, the basis on which it is valued on the balance sheet should be shown.

Surplus should contain only realized profits. It should not contain items of anticipated profits. If, for any valid reason, anticipated profits are taken up in the accounts, the increase in assets arising therefrom should be offset by a reserve of the same amount. This reserve is best shown as a deduction from the asset which shows the profits. To illustrate, if fixed assets are increased in value as the result of an appraisal, a reserve for the amount of the increase should be set up and shown as a deduction from the fixed asset stated at its new value. The nature of proprietorship reserves has been explained on page 167. They are shown at their book value. Only reserves representing appropriated surplus should be shown as a part of proprietorship.

Income and Expense Items[1]

Although more attention has been given in the past to the analysis of balance sheets than to the analysis of statements of income and expense, the latter is equally important. If the income and expense items are not properly valued, not only does the statement of income and expense show incorrect results but also the balance sheet items will be stated incorrectly, since each of the income and expense items is reflected in the balance sheet.

Sales or Gross Earnings

The gross selling price of all the commodities or services to which title has passed to the vendee should be included under this heading. Goods shipped on consignment, or goods for which orders have been received but to which title has not passed, should not be included. If a legally enforceable claim exists against the vendee then title has passed. "Approval or return" sales should not be shown as sales, until the vendee's option has been exercised. Account sales and cash sales should be shown

[1] Considerable attention has been given in chapter x to the meaning and proper valuation of the items of income and expense which customarily appear on the statement of income and expense. Some part of what is said here will necessarily, therefore, be a review and summary of the preceding discussion.

separately, since this makes possible certain significant comparisons. To illustrate, the sales on account can be compared with the accounts receivable outstanding, in order to judge whether the latter are too large in proportion to the volume of business. If the accounts receivable are too large in proportion to account sales, it indicates that collections are slow, and that sales may have been made to poor credit risks.

Trade discounts should be deducted before sales are shown, since they represent deductions from list price and not from invoice price. All goods returned and all allowances made to customers should be deducted from the gross sales to determine the net returns from sales. Price corrections or errors in billing should be given effect before the amount of the gross sales is stated. Outward freight when paid by the vendor should ordinarily be treated as a selling expense and not as a deduction from sales. When containers are charged to customers with the privilege of return, the amount of these charges should not be included in sales. It probably does not represent sales at all, since it is expected the retainers will be returned. In any case, sales of retainers do not represent sales of regular product, and so should not be shown as part of gross sales. Sales of scrap should also be shown separately from sales of regular product.

Cost of Goods Sold

The cost of the goods which are reported as sales should be shown under this heading. By cost is meant all the expenditures incurred up to the time the goods are put into condition to be offered for sale. The expenses incurred in making the sale and in delivering the goods to the customer should be shown as selling expenses, and not as part of the cost of goods sold.

"While all capital or value consumed in business operations is technically expense, the material and labor that enter into the manufacture of a product are usually known not as expenses, but as costs. General outlays in a factory, other than material and labor, while commonly known as factory or overhead expenses, are also a part of costs. The selling and administration expenses form the technical expenses of a business. This distinction between cost and expense is not very clearly defined, and frequently, the two terms are used synonymously. The distinction is one of convenience rather than necessity."[1]

One of the principal reasons for the distinction between expenditures which are shown as costs and those shown as operating expense is that there is usually one executive who is responsible for the cost of the goods and placing them at the disposal of the selling department, and there is another executive who is responsible for the selling of the goods and for their delivery to the customer. In order to judge the efficiency of these executives, the expenditures incurred by each should be shown separately.

Considerable discussion of the several items entering into the cost of goods sold has been given in the preceding chapter. It is unnecessary to repeat this discussion here.

Operating Expenses

Under this heading should be included all expenses which are incurred in carrying on the normal operations of the business. The items which are customarily included under this heading as well as those the author believes should be included, and the manner in which these should be classified, have been discussed in the preceding chapter. The classification there suggested makes possible the fixing of responsibility for the incurrence of expense. If this classification is maintained, care must be taken to see that expense items are charged to the proper groups, for errors are apt to occur and as a result incorrect conclusions are drawn. Careful inspection should be made to see that all accrued expenses applicable to the current period are included, and that all deferred items are eliminated. Some of the prob-

[1] Greenlinger, *Financial and Business Statements*, p. 59.

lems involved in allocating operating expenses to the period which receives the benefit of them in the form of sales will be discussed in a subsequent chapter.

Non-Operating Income and Expense

The nature of the items to be included under the heading of both non-operating income and non-operating expense, and the problems which arise with reference to controversial items, have been discussed sufficiently in the preceding chapter. Here two things deserve emphasis

1. A definite policy governing the classification of operating and non-operating income and expense should be adopted and followed in the preparation of all statements of income and expense. Otherwise confusion and erroneous conclusions will result.

2. The two divisions of the statement of income and expense where these items are shown should not be used as a dumping ground for various miscellaneous items of income and expense for which it may be somewhat difficult to fix responsibility. Whenever possible, responsibility should be fixed so that control can be more definitely exercised. If this is not possible or practicable, such items are usually better shown under operating income and expense, or under profit and loss credits and charges.

QUESTIONS FOR CLASS DISCUSSION

1. The balance sheet of the Jones Manufacturing Company shows the following items:

Cash on hand	$2,648.50
Cash in bank	920.00
Petty cash	23.81

Does this represent a normal condition? What reasons can you give for it? From the appearance of these items can you explain the method the company uses in handling its petty cash.

2. The balance sheet of the Western Manufacturing Company shows the item "Cash—$16,650.00." An examination shows that this item includes the following:

a) Checks received from customers which have been returned as "dishonored"	$ 850.00
b) I.O.U's of employees	300.00
c) Stamps held in the cash drawer	30.00
d) Notes of customers due but not yet presented for payment	800.00
e) Currency in cash drawer	25.00
f) Cash in the hands of branches held by them permanently as working funds	2,000.00
g) Cash in the bank for which checks have been issued but not yet presented	8,460.00

Explain how you would show these items on the balance sheet.

3. An analysis of the accounts receivable of the Bleeker Milling Company shows the following result:

Accounts receivable, not yet due	$10,000.00
Accounts receivable, 30 days past due	3,000.00
Accounts receivable, 60 days past due	2,000.00
Accounts receivable, 90 days past due	1,000.00

Explain how you should show the accounts receivable of the company on its balance sheet. Of what significance is the classification of the accounts to show the length of time past due?

4. An examination of the stock in the workroom of the Regal Press shows the following:

a) Paper and ink to be used for printing purposes	$40,000.00
b) Books in process of manufacture	20,000.00
c) Books completed, but not yet invoiced to customers	12,000.00
d) Books invoiced to customers but not yet paid for by them	6,000.00
e) Books invoiced to customers for which payment has been received	8,000.00

Explain how these various items should be treated in the accounts and on the financial reports of the company.

5. An examination of the records of the Chicago Wholesale Company shows the following:

a) Merchandise on hand for which invoices have not yet been received	$2,000.00
b) Merchandise received on consignment from other companies	5,000.00

c) Merchandise shipped to other companies to be sold on consignment	6,000.00
d) Orders received from customers for future delivery but which have not yet been filled	4,000.00
e) Merchandise for which the company has been billed, but which has not been received by it	1,000.00
f) Merchandise sold and paid for, but held for later delivery at the request of the purchaser	1,500.00

Explain how you should treat each of these items in preparing the inventory of this company

6. An examination of the inventory of the King Manufacturing Company shows numerous articles which have been on hand for a number of years, and on which no sales have been made for the past two years. Explain how these articles should be valued in taking the inventory.

7. In the inventory of this company there are two items of raw materials of which the market price is ten per cent less than cost. The finished article into which these raw materials will be manufactured has not decreased in price and there is every assurance that its price will not change. At which price would you value the raw materials?

8. The Jones Manufacturing Company shows on its balance sheet the following item: Land $19,000. Investigation shows that this represents land purchased for $44,000 against which a mortgage of $25,000 is outstanding. What changes should you suggest?

9. The following information appears on the balance sheet of the Madison Company:

Notes due merchandise creditors	$ 4,000.00
Notes due to banks	16,250.00
Accounts due merchandise creditors	7,500.00

What conclusions concerning the financial policy of the company may be drawn from this information?

10. The balance sheet of the Carlton Manufacturing Company shows no fixed liabilities. The statement of income and expense of this company shows the following item:

Interest on bonds payable	$900.00

What should you infer from these two statements?

11. A company has had certain notes receivable discounted at the bank. Of what importance is this to the creditors of the company? In what way will this information be shown on the balance sheet?

12. On the balance sheet of the Russell Company the following items appear:

Reserve for taxes	$ 350.00
Reserve for loss on bad debts	590.00
Reserve for sinking fund	12,000.00
Reserve for depreciation of buildings . .	2,500.00

Explain the meaning of each of these items and state how each should be shown on the balance sheet.

13. Explain and illustrate the items entering into the cost of goods sold in (1) a retail store; (2) a wholesale business; and (3) a manufacturing company.

14. "The expenses incurred in making a sale and delivering the goods to the customer should be shown as selling expenses and not as a part of the cost of goods sold." Why?

15. The balance sheet of the X Company shows the following items:

Notes receivable	$ 85,000.00
Accounts receivable	100,000.00

You cannot gain access to the records of the company but the treasurer agrees to answer any questions which you desire to ask. Make a list of the questions you should ask with reference to these items.

16. On the balance sheet of the X Company there appears the following item: Investments $21,000. An analysis of this item shows the following:
    1. One hundred shares of the stock of the James Corporation which has a par value of $100 a share was purchased at $95 and now has a market value of $105.
    2. One hundred shares of the Long Corporation which has a par value of $100 was purchased at $105 and now has a market value of $95.

    What is your opinion of this item?

17. Illustrate the significance of distinguishing between operating and non-operating income and expenses.

18. State several ways in which a firm desiring to increase its apparent profits might overstate its sales.

19. Make a list of twenty questions which would be useful in making an analysis of a statement of income and expense.

20. Make a similar list which would be useful in making an analysis of a balance sheet.

EXERCISE NO. 16

The Kingman Manufacturing Company manufactures valves and plumbers' supplies. It has ten branches through which it markets its goods. It has sales agencies which sell its goods on a commission. It acts as agent for five other companies, receiving a commission for its services. It carries in stock the goods of the companies it represents on a commission basis, and its goods are carried by its agents. The branches all carry a stock of merchandise provided by the factory. When these goods are shipped to the branch, they are entered on the records at ten per cent above factory cost. The branches purchase some merchandise from outside vendors, which they carry in stock. An examination of the merchandise inventory made by the Accounting Department in December, 1920, shows the following:

a) That there is a considerable quantity of merchandise which has been carried in stock for several years at both the branches and the factory. Some of it is obsolete and has no sale value in its present form. Some of it is very slow-moving, the turnover being once in two years. Other material is found to have a turnover of twice a year. The normal turnover of the up-to-date stock of the company is four times a year.

b) That the market price of a large part of the merchandise, due to the industrial depression, is below its purchase or production cost.

The company plans to take a physical inventory of all the stock at both the factory and the branches as of December 31, 1920. The president requests you to prepare instructions for the use of the employees who are to be employed in taking this inventory. He requests that these instructions state clearly the following:

1. The merchandise to be included in the inventory
2. The merchandise to be excluded from the inventory
3. The classification of the inventory desired for purpose of pricing
4. The price to be used in determining the value of each class
5. The method of obtaining this price

Required

Write a report addressed to the president of the company giving the instructions he desires. Be sure that these instructions are sufficiently clear and complete to be comprehended by the employees engaged in the inventory taking.

EXERCISE NO. 17

The Independent Manufacturing Company submits the following balance sheet to its bank:

Independent Manufacturing Co. Balance Sheet, December 31, 1920

Assets

Cash	$ 10,000.00	
Notes receivable	8,000.00	
Accounts receivable	20,000.00	
Inventories	180,000.00	
Stocks and bonds	40,000.00	
Unexpired insurance	800.00	
Organization expenses	16,000.00	
Office equipment	7,500.00	
Machinery and equipment	80,000.00	
Land and buildings	50,000.00	
Good-will and patents	50,000.00	
Total assets		$462,300.00

Liabilities

Capital	$200,000.00	
Bonds payable	20,000.00	
Notes payable	100,000.00	
Accounts payable	50,000.00	
Reserve for taxes	5,000.00	
Surplus	87,300.00	
Total liabilities		$462,300.00

You are requested by the bank to examine the records of the company and make appropriate any changes in its balance sheet. The examination discloses the following:

1. Cash represents the following:
   1. In the cash drawer: Currency, $250.00; I.O.U's of employees, $150.00; past due note, $100.00.
   2. In the hands of branches, $1,500.00.

3. In the bank: $3,000.00 on time deposit, not subject to withdrawal for four months; $5,000.00 on drawing account, against which there are outstanding checks amounting to $1,000.00. These checks have been issued in payment of accounts payable, but have not been entered in the accounting records.

2. NOTES RECEIVABLE represent the following:
   1. Notes of customers not due, $5,000.00.
   2. Notes of customers past due, $2,000.00.
   3. Notes of officers, $1,000.00.

   All the notes are non-interest bearing.

3. ACCOUNTS RECEIVABLE represent the following:
   1. Accounts of customers not due, $16,000.00.
   2. Accounts of customers past due, $4,000.00.

   No reserve has been provided for bad debts. You estimate that a reserve equal to 5 per cent of the outstanding book accounts should be set up.

4. INVENTORIES represent the following:
   1. Raw Materials, $40,000.00.
   2. Goods in Process, $50,000.00.
   3. Finished Goods, $90,000.00.

   The finished goods include $10,000.00 of merchandise which has been received from consignors. The remainder of the finished goods has been valued at selling price instead of cost. The average gross profit of the company is 25 per cent. The raw materials are valued at market price which is 10 per cent above the cost price. The goods in process have had 5 per cent added to their factory cost for selling and administrative expenses.

5. STOCKS AND BONDS represent the following:
   1. Prefered stock of the X Manufacturing Company. This cost $18,000.00 and now has a market value of $20,000.00.
   2. Common stock of the Ward Mercantile Company. This cost $20,000.00 and now has a market value of $15,000.00.

6. UNEXPIRED INSURANCE represents the following:
   1. The unexpired portion of five policies of insurance now in force. You find that the unexpired portion has been correctly calculated.

7. ORGANIZATION EXPENSES represent the following:
   1. The expenditures incurred in organizing the corporation five years ago. The amount as shown on the balance sheet represents the original cost. The amount has not been reduced since the time of the original entry.

8. Office Equipment represents the following:

   1. The original cost of office equipment purchased five years ago. You estimate the yearly depreciation to be 10 per cent.

9. Machinery and Equipment represents the following:

   1. Cost of machinery and equipment purchased during the past five years. You estimate that a reserve for depreciation equal to 60 per cent of its book value should be set up.

10. Land and Buildings represent the following:

    1. Land purchased five years ago at a cost of $20,000.00.
    2. Buildings constructed five years ago at a cost of $20,000.00.

You find that three years ago the land was appraised at $25,000.00 and its value written up to that amount. You also find that $5,000.00 spent in painting and roofing the building during the past year was charged to the building account. You estimate the depreciation on the buildings to be 5 per cent a year.

11. Good-Will and Patents represent the following:

    1. Patents granted by the National Government to the company on certain machines which it manufactures. The cost of obtaining the patents, including the cost of experimental work was $1,500.00. One-fifth of the life of the patents has expired. At the time the patents were obtained they were entered on the books at $20,000.00.
    2. Good-will of $30,000.00 was entered on the records six months ago at the direction of the president of the company.

12. Capital represents the following:

    1. Preferred Stock Authorized, $200,000.00.
    2. Common Stock Authorized, $100,000.00.
    3. Treasury Stock, Preferred, $100,000.00.

13. Bonds Payable represent the following:

    1. Twenty-year 6 per cent bonds issued five years ago and secured by a mortgage on the land and buildings.

14. Notes Payable represent the following:

    1. Notes payabe to merchandise creditors, $60,000.00.
    2. Notes payable to banks, $20,000.00.
    3. Notes payable to officers, $20,000.00.

15. Accounts Payable represent the following:

    1. Accounts payable to merchandise creditors, $49,000.00.
    2. Accrued wages, $1,000.00.

16. Reserve for Taxes represents the following:

    1. The state taxes accrued for the year. You estimate that an additional $100.00 should be added to this amount.

17. Surplus represents the following:

    1. Accumulated earnings.
    2. Adjustments made for good-will, patents, and land as explained in the foregoing statements.

Required

1. Prepare a balance sheet for the Independent Manufacturing Company, taking into consideration all the information discovered by your investigation.

2. Write a report addressed to the president of the bank explaining each change you have made and the reason for making it.

REFERENCES FOR FURTHER STUDY

1. Stockwell, *Net Worth and the Balance Sheet.*

2. Kester, *Accounting Theory and Practice*, Vol. III, chap. ii.

3. Havener, "Analysis of Financial Statements," *Journal of Accountancy*, May, 1919.

CHAPTER XII

THE INTERPRETATION OF FINANCIAL STATEMENTS

The Value of Comparisons

In the preceding chapter, the items which usually appear on the balance sheet and on the statement of income and expense have been discussed. What each should represent has been explained. When the balance sheet and the statement of income and expense are properly drawn, and the items on them correctly stated, the next question is how to use these statements to determine the financial condition of the business.

To arrive at any estimate of financial condition it becomes necessary to make comparisons. Any item, taken by itself, usually has little significance. To illustrate, the item of cash on the balance sheet of the X Corporation may appear at $20,000. This of itself has little significance with reference to the financial condition of the company. If the company is a small one doing a small volume of business, this may be too large an amount of cash for it to carry and may indicate poor management, especially if the company has interest-bearing obligations outstanding. For a somewhat larger company, this amount may represent a normal cash balance and may indicate proper financial management, especially if it is found to be the average balance of the company. For a very large company, such a cash balance would be much too small, and would probably indicate poor management and a precarious financial condition.

To determine the size of the cash balance which the company should carry and hence to judge the adequacy of its present balance, it is necessary to determine at least two things.

1. The volume of business performed by the company, and its immediate needs for cash. This necessitates a consideration of the asset and liability items appearing on the balance sheet, and the income and expense items appearing on the statement of income and expense. It may also involve some consideration of contemplated plans.

2. The cash balance which has been maintained in the past and the adequacy of this balance. This necessitates a consideration of past financial statements, and may involve the consideration of supplementary information needed to explain these statements.

The consideration of any other item which appears on the balance sheet and statement of income and expense will involve a similar procedure. For example, the net profit of the X Corporation may be $400,000 The first thought may be that this must be a favorable indication; that the company must be in a strong financial condition to earn such a large net profit. Investigation of the statements of income and expense for the three preceding years may show, however, that the company during these years made an average profit of $800,000 a year. An investigation of the balance sheet may show that the outstanding capital stock of the company is $10,000,000; hence the profits represent only 4 per cent on the stock. If the corporation has a large surplus which further increases its proprietorship, the earnings will be proportionally smaller. It will probably be concluded that the past year has not been a satisfactory one from the point of view of net profits.

Any statistical data, to be of the highest significance, must be presented in such a way as to show a comparison or relationship between facts. This applies to the facts shown by the balance sheet. It applies even more to the statistics regarding the operations of the business as shown by the statement of income and expense. In other words, standards must be used to judge financial data accurately.

Classifications of Possible Comparisons

The following comparisons may be made with reference to these statements:

1. Comparison of one item with another on a balance sheet. To illustrate, notes receivable may be compared with accounts receivable.

2. Comparison of an item on one balance sheet with the same item on another balance sheet. To illustrate, the inventory as shown by the balance sheet at the beginning of the year may be compared with the inventory at the end of the year. Such comparisons are usually made by means of a comparative balance sheet.

3. Comparison of one item with another on the same statement of income and expense. To illustrate, the selling expenses for the year may be compared with the sales for the year and the percentage determined.

4. Comparison of an item on one statement of income and expense with the same item on another statement of income and expense. To illustrate, the sales of one year as shown by the statement of income and expense of that year may be compared with the sales of the preceding year as shown by the statement of income and expense of the preceding year. Such comparisons are usually made by means of the comparative statement of income and expense.

5. Comparison of information shown on a balance sheet with information shown on a relative statement of income and expense. To illustrate, the net worth may be compared with the net profits to ascertain the ratio of earnings to investment.

6. Comparison of information shown on a comparative balance sheet with information shown on a relative comparative statement of income and expense. To illustrate, the increase in inventory as shown by the comparative balance sheet may be compared with the increase in sales shown by the comparative statement of income and expense.

Comparison of Items on a Specific Balance Sheet

The most important comparisons which can be made of the items on a given balance sheet are the following:

1. Ratio of current liabilities to current assets. This ratio is important since it is from the liquidation of the current assets that the funds must be obtained with which to pay the current liabilities. Since assets often shrink in value and liabilities never do, current assets should be considerably larger than the current liabilities. Banks for a long time have insisted on a rule-of-thumb ratio of 2 to 1; that is, that the current assets should be twice as large as the current liabilities. This is not a safe rule to follow arbitrarily since the appropriate ratio between the current assets and the current liabilities will vary with the nature of the business, and with market and financial conditions. The insistence of bankers upon this ratio indicates, however, their realization that the current assets of the business should always exceed, by a considerable margin, the current liabilities.

2. Ratio of notes receivable to accounts receivable. In most lines of business goods are sold on account, and notes are not received in payment at the time of sale. Consequently, it is expected that the accounts receivable will be considerably larger than the notes receivable. If a large item of notes receivable appears on the balance sheet of such firms, it is an indication of the probability that overdue accounts have been settled by means of notes. Such a situation is especially apt to arise in times of financial stringency. There are, of course, some firms which sell habitually on terms providing for the taking of notes in payment. In such cases, it is expected that the item notes receivable will be larger than the item accounts receivable. In judging the ratio of these two items on the balance sheet of any given business the terms on which it sells its product must be considered.

3. Ratio of notes payable to accounts payable. The notes payable shown on the balance sheet should be analyzed to show

whether they have been issued to (*a*) merchandise creditors; (*b*) banks; (*c*) note brokers; (*d*) others. If notes are issued to merchandise creditors at the time merchandise is purchased; or if they are issued to banks, or through note brokers, in order to obtain funds with which to discount accounts payable, there is usually no objection to an excess of notes payable over accounts payable. In fact, such an excess indicates good management when discounts on accounts payable are secured which are in excess of the interest on the notes. If, however, notes payable have been issued to merchandise creditors in payment of overdue accounts, or if they have been issued to officers or outsiders to obtain funds because the bank credit of the company is limited, an unfavorable financial condition is indicated.

4. Ratio of capital received from each source to total capital used. The credit side of the balance sheet shows the sources from which the capital of a business has been secured. These sources are usually three: (*a*) short time creditors, (*b*) long time creditors, (*c*) owners. Only a reasonable proportion of capital should be obtained from each source. What is a reasonable proportion in any given case depends on the nature of the operations of the business, its legal form of organization, and the financial and market conditions. The ratio at one stage of the business cycle may properly be considerably different from the ratio at a different stage of the cycle.

The ratio between the owned capital and the borrowed capital is especially significant. It is usually a wise and conservative policy for a business to use its accumulated profits as a basis for its expansion. By this method the owners of the company gradually increase their equity in the business.

5. Ratio of each class of assets to total assets. The assets show how the capital of a business has been invested. Only a reasonable proportion should be invested in each class of assets. What is a reasonable proportion in any given business depends on the same factors determining the source from which capital

should be secured. The ratio between the different classes of assets indicates the proportion of capital that is kept in the current turnover of the business (represented in current assets such as cash, accounts receivable, inventories, etc.), how much of it is invested in the plant and equipment, and how much is represented in investments in other companies and in intangible capital.

6. Ratio of stock outstanding to net worth. This ratio gives the book value of the stock outstanding. If two or more kinds of stock are outstanding the book value of each kind may be determined. This shows the stockholders the book value of their equity in the business and by considering this ratio at the end of several fiscal periods they can determine whether their equity is increasing or decreasing. The agreement under which stock is issued sometimes provides that the net assets, or the net current assets, or both, shall be kept at a certain ratio to stock outstanding. In such cases the balance sheet serves to show whether these ratios are maintained in accordance with the agreement.

Comparison of Corresponding Items and Ratios on Different Balance Sheets

These preceding comparisons are more significant if made on two or more balance sheets so that tendencies can be seen. These comparisons are facilitated by the preparation of a comparative balance sheet showing the assets, liabilities, and proprietorship at the end of two or more fiscal periods in parallel columns. The comparative balance sheet also brings out other comparisons than those which have been discussed.

Form of Comparative Balance Sheet

The comparative balance sheet usually consists of two balance sheets prepared in the standard form and arranged so as to show in parallel columns the assets, liabilities, and proprietorship of a firm at the beginning and the end of two or more fiscal

FORM OF COMPARATIVE BALANCE SHEET[1]

Assets

Accounts	Last Year Amount	Last Year Percentage	This Year Amount	This Year Percentage	Increase or Decrease
CURRENT ASSETS:					
Cash	$ 439,000	1.7	$ 456,000	1.5	$ 17,000
Accounts receivable	7,163,000	27.7	8,460,000	27.7	1,297,000
(Day's sales in accts. rec.)	72		80		
Inventories	10,844,000	41.9	13,250,000	43.3	2,406,000
(Years sales time inven.)	2.9		2.4		
Prepaid expenses	57,000	.2	74,000	.2	17,000
Marketable securities	299,000	1.2	260,000	.8	[2]39,000
Total current assets	$18,802,000	72.7	$22,500,000	73.5	$3,698,000
INVESTMENTS:					
Investments in other companies, etc.	$ 78,000	.3	$ 578,000	1.9	$ 500,000
PLANT AND EQUIPMENT:					
Land	$ 81,000	.3	$ 101,000	.3	$ 20,000
Buildings less depreciation	825,000	3.2	1, 075,000	3.5	250,000
Mach. and equip. less depreciation	1,008,000	3.9	1,208,000	4.0	200,000
Small tools and movables depreciated	94,000	.3	206,000	.7	112,000
Total plant and equipment	$ 2,008,000	7.7	$ 2,590,000	8.5	$ 582,000
(Years sales times fixed assets)	15.2		12.2		
INTANGIBLE FIXED INVESTMENT:					
Good-will, trade-marks, patents, etc.	$ 4,966,000	19.3	$ 4,966,000	16.1	$........
(Years sales times total assets)	1.2		1.03		
(Oper. profits, percentage to total assets)	7.1%		8.1%		
Total	$25,854,000	100.0	$30,634,000	100.0	$4,780,000

[1] Adapted from pamphlet of Illinois Manufacturers Association, *Interpretation and Use of Financial Statements.*

[2] Decrease.

FORM OF COMPARATIVE BALANCE SHEET

Liabilities and Capital

Accounts	Last Year Amount	Last Year Percentage	This Year Amount	This Year Percentage	Increase or Decrease
CURRENT LIABILITIES:					
Accts. pay. incl. accr. accts.	$ 2,015,000	7.8	$1,410,000	4.6	$ [1]605,000
Notes payable	5,548,000	21.4	7,851,000	25.7	2,303,000
Provision for fed. taxes	1,325,000	5.1	1,600,000	5.2	275,000
Divid. decl. not yet paid	378,000	1.5	423,000	1.4	45,000
Total current liabilities	$ 9,266,000	35.8	$11,284,000	36.9	$2,018,000
Net working capital	$ 9,536,000	.....	$11,216,000	.....	$1,680,000
Ratio current assets to current liabilities	2.03		1.99		
BONDS OUTSTANDING:					
10-year 1st Mortgage 6 per cent Gold Bonds due 1930	$ 500,000	2.0	$ 1,000,000	3.3	$ 500,000
NET WORTH:					
Preferred stock 6 per cent	$ 5,400,000	20.9	$ 5,400,000	17.6	$........
Common stock	6,300,000	24.3	7,800,000	25.5	1,500,000
(Book value common stock)	155.00		166.00		
Appropriated surplus—					
for contingencies	400,000	1.6	400,000	1.3	$........
for bond skg. fund reserve	50,000	.2	100,000	.3	50,000
Surplus account	3,938,000	15.2	4,650,000	15.1	712,000
Total net worth	$16,088,000	62.2	$18,350,000	59.8	$2,262,000
(Percentage earned on net worth)	8.3%		8.7%		
(Percentage earned on common stock)	16.0%		16.4%		
Total	$25,854,000	100.0	$30,634,000	100.0	$4,780,000

[1] Decrease.

periods. In the annual reports to stockholders the comparative balance sheet is shown in condensed form, but when prepared for executive use it may be made to show as much detail as desired. If the increases and decreases of the various items are shown, and the most significant ratios between items given, the usefulness of the comparative balance sheet is greatly increased.

A useful form of the comparative balance sheet, showing desirable comparisons and ratios, is given on pages 248 and 249.

Value and Use of Comparative Balance Sheet

The comparative balance sheet is found quite frequently in the annual reports of corporations. It is very useful in enabling stockholders to see the changes in financial condition which have taken place. Bankers for many years have realized the value of comparative balance sheets, and many bankers have constructed them from the separate balance sheets submitted by customers at the end of different fiscal periods. In recent years the forms supplied to customers by banks usually call for the submission of a comparative balance sheet. The forms recommended by credit men and bankers associations usually call for comparative data.

The comparative balance sheet is employed very frequently in the financial columns of the daily press in the discussion of the financial condition of firms. Business executives have found it of especial value in formulating executive decisions. The demand for the comparative balance sheet has become so general that public accountants frequently make it a part of their reports when the information is available for its preparation. When the accountant has not audited the records of the firm for the previous year he may hesitate to prepare a comparative balance sheet since he has not verified the items appearing on the balance sheet at the end of the preceding period. If he audits the firm each year he can easily prepare and certify the comparative statement.

Comparison of Items on Comparative Balance Sheet

In the comparative balance sheet, there are certain comparisons of especial significance.

1. Ratio of notes receivable to accounts receivable. The significance of this ratio as shown by a single balance sheet has been discussed. If two or more balance sheets are available the tendency of this ratio can be ascertained. If the notes receivable are increasing faster than the accounts receivable this is usually an unfavorable sign, unless the terms of credit have changed. The opposite tendency usually indicates a favorable situation.

2. Increase or decrease of inventories. It is desirable that the investment in inventories be as small as is consistent with the satisfaction of customers' demands. An increase in the amount of the inventories may result from several causes:

a) There may have been a large increase in the volume of business of the company, thus necessitating an increase in inventory. The comparative statement of income and expense of the company will show whether this is true. From this statement it will also be possible to judge the wisdom of the amount of this increase. The method by which this is done will be explained later.

b) A large amount of merchandise, either in raw or finished state, may have been purchased because of an anticipated increase in price, or because of an estimated increase in business within the immediate future.

c) A large amount of unsalable goods may have been accumulated during past periods, or large inventories may have been purchased because of anticipated sales which failed to materialize. Either situation indicates an undesirable condition. A calculation of the merchandise turnover from the information on the comparative statement of income and expense will show whether this condition exists.

3. Increase or decrease in fixed assets. It is desirable to keep the fixed assets at the minimum amount consistent with the

production of the quantity for which an effective and profitable sales demand can be secured. An increase in the book value of the fixed assets may arise from the following sources:

a) Additional assets may be purchased. If the actual or anticipated increase in business warrants such additions, it is proper that they be made. Care must be exercised to see that anticipated increases are based on accurate estimates, and that such increases are of sufficient permanency to make additional investment in fixed assets profitable.

b) Repairs to assets may be charged to the asset accounts instead of to the expense accounts of the year. This procedure is, of course, highly improper. It overstates the assets and understates the expenses for the year.

c) The assets may be appraised, and, on the basis of this revaluation their book value may be increased. It is contrary to conservative accounting and management to show appreciation of fixed assets in the accounts, or on the financial reports, save under exceptional conditions. Since these assets are not to be sold but are to be used in the conduct of the business, the increase in their market value does not increase their efficiency. Therefore, their value to the business as a going concern is not increased. An analysis of the surplus account and expense accounts assists in determining whether the increases in fixed assets are justified.

4. Increase or decrease in notes payable and accounts payable, and the change in the ratio of these items. By considering the ratio of these items on two or more balance sheets, the desirability or undesirability of the current tendency can be ascertained.

5. Increase or decrease in the long-term liabilities and the ratio of these to fixed assets. The long-term liabilities are usually secured by a mortgage on the fixed assets. If these liabilities increase more than do the fixed assets, it indicates that the equity of the stockholders in these assets is being decreased. This is not necessarily an unfavorable condition but care should

be taken to see that the capital obtained from such sources is being used for safe and profitable purposes.

6. Increase or decrease in the capital stock and surplus. An increase in capital stock is proper if the business can make profitable use of the capital thus secured, and if this is the most economical way to secure capital. An increase in surplus is usually looked upon with favor, but before a final decision can be made with reference to this, it will be necessary to know:

a) The origin of the increase in surplus. It is important to know whether this has originated from the earnings of the year, or whether it is the result of writing up fixed assets, or whether it has been obtained from other sources.

b) The total earnings for the year should be studied to see what part of the earnings has been retained as surplus. It will also be desirable to ascertain whether the regular dividends have been paid.

7. Increase or decrease in the ratio of current assets to current liabilities. The comparative balance sheet makes it possible to see whether this ratio shows a favorable or unfavorable trend.

8. The new funds which have come into the business during the year, and the disposition of these funds. This can be determined by a consideration of the increases and decreases in the liability and proprietorship items, and the corresponding changes in the asset items. To illustrate the method, the comparative balance sheet on pages 248 and 249 shows the following:

I. *New funds coming into business during the year*

1. By increasing the common stock outstanding .	$1,500,000
2. By increasing the amount of bonds outstanding	500,000
3. By net profits left in the business	712,000
4. By profits withheld in the business by reserves	50,000
Total	$2,762,000

II. *Which were used for the following purposes:*

1. Additional investment in plant and equipment	582,000
2. Additional investments in other companies, etc.	500,000
3. Balance remaining as increase in net working capital	1,680,000
Total	$2,762,000

A supporting schedule showing the current assets and current liabilities of each balance sheet, and the increase in the net working capital represented by their difference may be prepared if desired.

Comparison of Items on a Statement of Income and Expense

The most significant of the ratios secured by a comparison of items on the statement of income and expense are the following:

1. Ratio of returns and allowances to sales. It is often desirable to state a separate ratio for returns and for allowances
2. Ratio of net sales to gross sales
3. Ratio of cost of goods sold to sales
4. Ratio of gross profit to sales
5. Ratio of each class of expenses, such as buying, selling, personnel, and financial to sales
6. Ratio of net operating profits to sales
7. Ratio of gross income to sales
8. Ratio of net income to sales

Even more detailed comparisons may be made, but this is usually not necessary. The foregoing ratios are very useful when taken in connection with the same ratios for previous years, or with estimated ratios for the current year. They are of little significance when taken by themselves. Unless there is some standard by which to judge them, there is no means of knowing whether they are too large or too small.

The standard most frequently employed is the corresponding ratios on previous statements of income and expense. Past performance is thus used as a standard by which to judge current performance. This standard is usually inadequate, but in some cases it is the only one available. It is desirable to have as an additional standard the ratios shown by the estimated statement of income and expense for the current period. If a system of budgetary control is in operation, this standard will be available. Another useful standard is the ratios shown by the statements of income and expense of other business firms in the same line of business and operating under similar conditions. In many cases, however, these ratios are not available.

Whether the ratios of past periods or the estimated ratios of the current period are used as a standard, the comparison between the current ratios and the standard ratios can be best expressed through a comparative statement of income and expense. This statement shows the income and expenses of the periods under comparison in parallel columns so they can be easily compared.

Use of Comparative Statement of Income and Expense

The comparative statement of income and expense is not used as extensively as the comparative balance sheet. It is not usually found in the published reports of corporations. Railroads are the only type of business using it to any appreciable degree. The standard form of reports which banks request of applicants for credit often call for some comparative data, but they do not require a comparative statement of income and expense. The standard form of statement of income and expense recommended by the Federal Reserve Board as shown on page 257 is made in comparative form, but so far as the author is aware banks have not insisted on their customers using this form. In the advertisements of bonds and stocks comparative data with reference to income and expenses is often shown, but a complete comparative statement of income and expense is rarely given. Business executives have found the comparative statement of income and expense of especial value in the formulation of executive decisions, but they have not become as accustomed to its use as they have to the comparative balance sheet, largely because it has not been presented for their use as frequently.

Some accountants include the comparative statement of income and expense in their reports to clients when the data are available. The accountant may be unable to include such a statement in his report because he may be employed to perform only a *balance-sheet* audit and therefore may not verify the income and expense items, or because he may not have audited the accounts of the company for the preceding year and therefore may not desire to include in his report a statement of income and expense which he has not verified.

If the auditor conducts a detailed audit for the company each year, there is no good reason why he should not include a comparative statement of income and expense as well as a comparative balance sheet in his report. The usefulness of the report will be enhanced by so doing.

Form of Comparative Statement of Income and Expense

The comparative statement of income and expense usually consists of two statements of income and expense prepared in the standard form and arranged so as to show in parallel columns the income, expenses, and net profit of a firm for two or more periods of time.

The Federal Reserve Board has recommended for use by applicants for credit from a member of the Federal Reserve System the form of comparative statement of income and expense given on the following page. It is interesting to note that this statement provides for a comparison for three years. This enables the reader to ascertain better the trend of the business. This statement is also interesting as an illustration of the orthodox form of the statement of income and expense.

COMPARATIVE STATEMENT OF PROFIT AND LOSS FOR THREE YEARS ENDING ________ 19—

	Year Ending—— 19—	19—	19—
Gross sales	$......	$......	$......
Less outward freight, allowances and returns	......	......	......
Net sales	......	......	......
Inventory beginning of year	......	......	......
Purchases, net	......	......	......
	......	......	......
Less inventory end of year	......	......	......
Cost of sales	......	......	......
Gross profit on sales	......	......	......
Selling expenses (itemized to correspond with ledger accounts kept)	......	......	......
Total selling expense	......	......	......
General expenses (itemized to correspond with ledger accounts kept)	......	......	......
Total general expense	......	......	......
Administrative expenses (itemized to correspond with ledger accounts kept)	......	......	......
Total administrative expense	......	......	......
Total expenses	......	......	......
Net profit on sales	......	......	......
Other income:			
Income from investments	......	......	......
Interest on notes receivable, etc.	......	......	......
Gross income	......	......	......
Deductions from income:			
Interest on bonded debt	......	......	......
Interest on notes payable	......	......	......
Total deductions	......	......	......
Net income—profit and loss	......	......	......
Add special credits to profit and loss	......	......	......
Deduct special charges to profit and loss	......	......	......
Profit and loss for period	......	......	......
Surplus beginning of period	......	......	......
Dividends paid	......	......	......
Surplus ending of period	......	......	......

The usefulness of this statement would be increased if increases and decreases of items and the ratio between items were shown in a similar manner to which they are shown for balance-sheet items on pages 248 and 249.

Comparison of Items on Comparative Statement of Income and Expense

On the comparative statement of income and expense there are certain comparisons of especial significance.

1. *Increase or decrease in sales.*—As a general rule an increase in sales is desirable and a decrease undesirable. It is not safe, however, to base conclusions on the volume of sales alone. The results of sales in terms of net profits must be considered. Most firms can increase their sales if they are willing to sacrifice profits, or increase their selling and other operating expenses. A firm may properly secure sales at an initial cost which reduces present net income, if it is possible to retain at a lower cost the volume thus secured and thereby increase future profits. It may also be good policy for a firm to reduce its sales. For example, it may have been making unprofitable sales. Or it may be reducing its sales to "get under cover," in anticipation of an unfavorable change in the business cycle.

2. *Ratio of sales returns and allowances to sales.*—It is important to watch this ratio carefully. An increase in this ratio usually indicates one of two things: either poorer service is being given to customers since they are claiming more allowances and returning more goods, or, new territories are being entered and, in the process of establishing new relations, more liberal privileges are being accorded to customers. The latter situation is justifiable if the policy followed is not so liberal as to make the procurement of the additional sales unprofitable. An analysis of sales returns and allowances should be made to the end that their cause can be ascertained, and eliminated if possible.

3. *Ratio of gross profit to sales.*—A decrease in this ratio indicates the probability that the cost of goods sold has increased faster than the sales price. This condition is likely to occur in a period of rising prices. It may also indicate that the sales price had decreased faster than has the price of the goods purchased or the cost of the goods manufactured. This condition is likely to occur in a period of falling prices. It may be due to the fact that sales prices have fallen and the goods sold represent large inventories purchased before the fall of prices. An increase in this ratio is usually regarded as favorable but it may be undesirable if it is the result of keeping sales prices above those of competitors and receiving a smaller volume of sales as a result.

4. *Ratio of average inventory to cost of goods sold.*—The statement of income and expense shows the beginning and ending inventories. By taking one-half of their sum a rough estimate of the average inventory for the period can be determined. In many firms this method does not give an accurate statement of the average inventory because of seasonal fluctuations in sales with a consequent seasonal fluctuation of inventories. A better method is to take an average of the inventory at the end of each month. The average inventory divided into the cost of goods sold gives the merchandise turnover. This figure is especially significant. The greater the turnover, other things being equal, the greater the profits. The comparative statement of income and expense shows whether there is a tendency for the turnover to increase or decrease.

5. *Ratio of operating expenses to sales.*—This ratio is exceedingly important. An increase in operating expenses may more than offset an increase in gross profits secured from an increase in volume of sales. There are few business firms incapable of increasing their sales if they are willing to increase their expenses sufficiently. Any tendency for the expense ratio to increase should be detected at once and the reason investigated. Usually

it is best to determine the ratio of each class of operating expenses to sales so that the cause for any change in the operating expense ratio can be more easily detected.

6. *Ratio of net profit to sales.*—This ratio is significant because the final object of the operations is profit, and the amount of the profit is the most significant test of the efficiency of a business. There are conditions under which a decrease in profits is not an undesirable indication but such conditions are not usual.

7. *Ratio of sales discounts to sales.*—In the absence of a change in terms of sale a decrease in this ratio indicates that the customers of the firm are not paying as promptly as usual and this foretells the probability of slow or uncollectible accounts receivable. An unusually large increase may indicate that the firm is allowing excessive rates of discount and consequently is paying too dearly for the advantage obtained from the prompt payment of customers' accounts.

8. *Ratio of purchase discounts to cost of purchases.*—In the absence of a change in conditions under which purchases are made, a decrease in this ratio usually indicates that a firm is negligent in taking discounts, or that it is not sufficiently strong financially to take all the discounts offered. The usual terms of discount are sufficiently large to make it profitable to borrow funds and take discounts. Consequently an increase in the ratio of discounts taken can usually be regarded as a favorable indication.

9. *The increase or decrease in the items of non-operating income and non-operating expense.*—The significance of this information should be apparent.

Comparison of Information Shown on Balance Sheet with Information Shown on Relative Statement of Income and Expense

The most significant comparisons which can be made between a balance sheet and the related statement of income and expense are the following:

1. *Ratio of sales to accounts receivable.*—This comparison indicates the effectiveness of the credit and collection department in granting credit and in enforcing credit terms. The maximum profit to be secured from a sale is fixed when the sale is made. The longer the account resulting from the sale is uncollected, the greater the carrying charges and consequently the smaller the net profit. The approximate amount of the accounts receivable properly outstanding at the end of the period can be obtained by multiplying the sales for the period by a fraction of which the average credit period is the numerator and the fiscal period the denominator. To illustrate, if the yearly sales are $600,000 and the average credit period thirty days, the accounts receivable at the end of the year should be approximately $\$600{,}000 \times 30/360 = 50{,}000$.

2. *Ratio of sales to fixed assets.*—This ratio shows the relation between the volume of business done and the investment in fixed assets. If this ratio can be checked against the same ratio for preceding periods or the same ratio for other firms in the same or similar lines of business an indication can be secured whether the expansion in fixed investment has been too fast in view of the volume of business done.

3. *Ratio of sales to total assets.*—This ratio is important because it indicates the effectiveness with which the capital of the business is being used. The greater the volume of business done on a given amount of capital, the larger will be the return upon the capital used. One of the primary objects of financial administration is to secure the maximum amount of business on a conservative use of capital. This ratio is of real usefulness only when it can be compared with some standard, such as the ratio in previous periods or the ratio of other firms in the same line of business. There are, of course, many factors which affect this ratio such as changing price levels, changes in methods of operation, etc.

4. *Ratio of profits to total assets used.*—In arriving at profits for the purpose of this comparison all costs of capital such as

interest, and discounts, should be excluded. The purpose is to determine the earning capacity of the assets. This ratio shows the return the organization has earned on all the capital used, regardless of its origin, whether it was invested by stockholders, bondholders, or long-term note holders, or whether it is being temporarily supplied by merchandise or bank creditors.

5. *Percentage of profits available for dividends to net worth.*—The ratio of profits available for dividends to the net worth which represents the stockholders' interests is of importance to all those having a proprietary interest in the business. There should be included in the net worth the capital stock, the free surplus, and the proprietorship reserves. Sometimes the ratio of earnings to capital stock is given in the discussion of the earning capacity of a business. Such a ratio is misleading. The surplus and proprietorship reserves are as much a part of the net worth as is the capital stock.

6. *Percentage earned on common stock.*—This percentage is determined by dividing the net earnings available for dividends on common stock—after deducting preferred stock dividends—by the amount of the common stock outstanding. This is based on the assumption that the preferred stock is non-participating. If it is participating, the rights of the common stock to the dividends in excess of the standard preferred rate would be affected accordingly.

7. *Relation of valuation of balance-sheet items to expense charges and income credits.*—The valuation of some of the balance-sheet items can be checked by the information shown on the statement of income and expense. To illustrate, the absence of any charges for repairs or depreciation on the statement of income and expense indicates the possibility that repairs have been charged to asset accounts and that no provision has been made for depreciation. This, of course, would indicate an overvaluation of the fixed asset items on the balance sheet.

An absence of a charge for bad debts on the statement of income and expense indicates that no provision has been made for this item on the balance sheet and that consequently accounts receivable are overstated. An increase in the surplus may come from earnings or from other sources. An inspection of the statement of income and expenses will serve to show the source of the increase.

Comparison of Information Shown on a Comparative Balance Sheet with the Information Shown on a Relative Comparative Statement of Income and Expense

All the comparisons which the foregoing discussion has explained may be made between a single balance sheet and a single statement of income and expense are more significant if they are made between a comparative balance sheet and a comparative statement of income and expense. When the statements are in comparative form a standard is available for judging the comparisons made. In addition to the foregoing comparisons the comparative statements make possible the following:

1. *Comparison of notes and accounts receivable with sales discounts.*—We have previously seen that if the comparative balance sheet shows that the notes receivable are increasing faster than the accounts receivable it is probable that customers are given notes in payment of overdue accounts. If the comparative statement of income and expense shows that sales discounts are decreasing in proportion to sales this is a further verification of this probability.

2. *Comparison of inventories with turnover.*—If the comparative balance sheet shows that inventories are increasing this may or may not be justified. If the comparative statement of income and expense shows a decrease in merchandise turnover this is a strong indication that merchandise is being purchased in excess of current needs.

3. *Comparison of notes payable and purchases discounts.*—We have seen that if the comparative balance sheet shows an increase in notes payable that this may be due to the fact that loans have been contracted at bank in order to take discounts on accounts payable. If the purchases discounts as shown by the comparative statement of income and expense have increased in proportion to goods purchased this is a further indication that the notes payable have been issued for the purpose suggested above. If the purchases discounts show a decrease in comparison with purchases it is an indication that the notes payable have been issued for some other purpose.

QUESTIONS FOR CLASS DISCUSSION

1. The president of the King Corporation says that his company does not need to employ standards or records. He asserts that the check book of the company shows a bank balance of $125,000 and that is all he needs to show him that the company is managed efficiently. What about it?
2. "The ratio properly existing between the current assets and the current liabilities varies with the nature of the business and market and financial conditions." Explain.
3. "There are some businesses which sell habitually on terms providing for the taking of notes in payment." Give illustrations.
4. "Repairs to assets may be charged to the asset accounts instead of being charged to the expense accounts of the year." What reasons can you give for this incorrect practice?
5. "The comparative statement of income and expense is not used as extensively as the comparative balance sheet." Why?
6. "A firm may intentionally reduce the volume of its sales because it is 'getting under cover' in anticipation of an unfavorable change in the business cycle." Explain.
7. "The greater the turnover, other things being equal, the greater the profits." Explain why this is true. Illustrate where "other things may not be equal."
8. The Jones Mercantile Company requests a loan of the First National Bank and presents the following balance sheet as a report of its financial condition:

Cash	$ 1,000	Notes payable	$18,000
Notes receivable	2,000	Accounts payable	6,000
Accounts receivable	8,000	Capital stock	16,000
Merchandise inventory	12,000	Surplus	1,000
Fixed assets	18,000		
	$41,000		$41,000

Should you advise the bank to grant the loan? Why?

9. The balance sheet of the X Mercantile Store shows the current assets to be twice its current liabilities. The balance sheet of the Y Manufacturing Company shows its current assets to be three times its current liabilities. Does this prove that the Y Manufacturing Company is a better credit risk than the X Mercantile Store? Why?

10. The balance sheet of the National Harvester Company shows the following items:

Notes receivable	$27,000
Accounts receivable	9,000

Under what condition will this ratio of notes receivable to accounts receivable be justified and under what conditions will it indicate an undesirable condition?

11. The balance sheet of the Daley Corporation shows the following items:

Notes payable	$18,000
Accounts payable	6,000

Under what conditions will this ratio of notes payable to accounts payable be justified and under what conditions will it indicate an undesirable condition?

12. The comparative balance sheet of the Lindblom Manufacturing Company shows the following:

	1921	1920
Notes receivable	$28,000	$18,000
Accounts receivable	14,000	20,000

What do these comparisons indicate as a possibility? How would you proceed to determine whether this possibility is actual?

13. The same comparative balance sheet shows the following:

	1921	1920
Merchandise inventory	$68,000	$40,000

Explain the possible reasons for the increase in inventory, and state how you would proceed to determine the actual reason. Assuming such facts as are necessary, state under what conditions the increase is justified and under which it is not.

14. The comparative balance sheet of the same company shows a large increase in the book value of fixed assets during the year. Explain the possible sources of this increase and state in each case your opinion with reference to such an increase.
15. The comparative balance sheet of the Jones Corporation shows the following items:

	1921	1920
Notes payable	$66,000	$32,000
Accounts payable	36,000	54,000

Explain what you should know in order to interpret the meaning of this comparison.
16. The sales returns and allowances of the Anderson Wholesale Company for the year 1920 is 2 per cent of sales and during the year 1921 they are 4 per cent. What does this increase indicate?
17. The comparative statement of income and expense of the same company shows that the cost of goods sold for the year 1920 is 60 per cent of sales and during the year 1921 it is 70 per cent. Explain what this shows and the probable cause for it.
18. The merchandise turnover of the company has decreased from 6 per cent in 1920 to 4 per cent in 1921. Explain the possible causes for this decrease.

EXERCISE NO. 18

The balance sheet of the Johnson Mercantile Company on December 31, 1919, is as follows:

JOHNSON MERCANTILE COMPANY

Balance Sheet, December 31, 1919

Cash	$ 18,000	Notes payable . . .	$ 31,000
Notes receivable . .	39,000	Accounts payable . .	44,000
Accounts receivable .	75,000	Mortgages payable . .	30,000
Merchandise inventory	210,000	Bonds payable . . .	32,000
Land	90,000	Capital stock . . .	375,000
Building	60,000	Surplus	34,000
Office equipment . .	15,000		
Deferred charges to expense	8,000		
Good-will.	31,000		
	$546,000		$546,000

Mr. Raymond, a prospective purchaser of one-half of the capital stock of the company, requests you to state your opinion of the financial condition of the Johnson Mercantile Company as shown by this balance sheet. You cannot obtain access to the records of the Johnson Mercantile Company because they are maintained in a distant city, but the vice-president of the company, who is treasurer and head of the accounting department, agrees to answer any questions.

Required

State in outline form (*a*) the questions which you should ask with reference to each item which appears on the balance sheet; (*b*) the comparisons of items which you should make in interpreting the balance sheet and what these comparisons indicate on this statement.

EXERCISE NO. 19

Mr. Raymond does not purchase the capital stock of the Johnson Mercantile Company (Exercise No. 18) in 1920 because he thinks the purchase price is too high. In January, 1921, the same stock is offered to Mr. Raymond at a lower price. He submits to you the following balance sheet of the company:

JOHNSON MERCANTILE COMPANY
Balance Sheet, December 31, 1920

Cash	$ 15,000	Notes payable	$195,000
Notes receivable	71,000	Accounts payable	75,000
Accounts receivable	69,000	Mortgages payable	45,000
Merchandise inventory	405,000	Bonds payable	40,000
Land	105,000	Capital stock	375,000
Building	63,000	Surplus	54,000
Office equipment	16,000		
Deferred charges	10,000		
Good-will	30,000		
	$784,000		$784,000

Required

1. Prepare a comparative balance sheet for the Johnson Manufacturing Company, using the balance sheet given in this and Exercise No. 18.

2. Write a report to Mr. Raymond showing your method of interpreting the comparative balance sheet and your opinion of the financial

condition of the company as shown by its balance sheet. State any additional information you think necessary to determine properly the advisability of purchasing the stock.

EXERCISE NO. 20

After examination of the comparative balance sheet of the Johnson Mercantile Company which you prepared in Exercise No. 19, you suggest to Mr. Raymond that it is desirable to obtain a comparative statement of income and expense of the company that you may study it in connection with the comparative balance sheet. In compliance with your suggestion, he obtains the following statement:

JOHNSON MERCANTILE COMPANY

Comparative Statement of Income and Expense

	1919	1920
Gross sales	$600,000.00	$ 900,000.00
Less: Sales returns and allowances	6,000.00	1,800.00
Net sales	594,000.00	898,200.00
Cost of goods sold:		
Inventory beginning of year	95,000.00	215,000.00
Purchases	622,000.00	951,000.00
	$717,000.00	$1,166,000.00
Less: Ending inventory	210,000.00	405,000.00
Cost of goods sold	507,000.00	761,000.00
Gross profit on sales	87,000.00	127,200.00
Operating expenses:		
Buying expenses	7,500.00	7,500.00
Selling expenses:		
Salesmen's salaries	11,000.00	20,000.00
Salesmen's expenses	15,000.00	30,000.00
Advertising	8,000.00	18,000.00
Clerk hire	3,000.00	4,000.00
Miscellaneous	1,200.00	1,200.00
Total selling expenses	38,000.00	73,200.00

JOHNSON MERCANTILE COMPANY

Comparative Statement of Income and Expense (*Cont.*)

	1919	1920
Administrative expenses:		
Office salaries	$ 7,500.00	$ 13,000.00
Heat and light	3,000.00	3,000.00
Clerk hire	4,000.00	4,000.00
Telephone and telegraph	250.00	300.00
Legal expense	250.00	1,000.00
Total administrative expense	15,000.00	21,300.00
Total operating expenses	60,700.00	102,000.00
Net operating profit	26,300.00	25,200.00
Other income:		
Interest on notes receivable	500.00	500.00
Discount on purchases	9,500.00	5,800.00
Total other income	$ 10,000.00	$ 6,300.00
Gross income	$ 36,300.00	$ 31,500.00
Deductions from income:		
Interest on notes payable	$ 1,500.00	$ 2,000.00
Interest on mortgages payable	1,800.00	1,900.00
Interest on bonds payable	1,000.00	2,000.00
Sales discounts	4,000.00	100.00
Total deductions from income	$ 8,300.00	$ 6,000.00
Net income	$ 28,000.00	$ 25,500.00

Required

Write a report to Mr. Raymond stating:

1. All the comparisons which you have made:
   - *a*) Between items contained on the comparative statement of income and expense.
   - *b*) Between items on the comparative balance sheet and the comparative statement of income and expense.

2. Your opinion concerning the financial condition of the company and the desirability of buying one-half of the capital stock at its book value as shown by the balance sheet of December 31, 1920.

Add a memorandum to your report giving your opinion of the form and content of the statement of income and expenses of the Johnson Company.

REFERENCES FOR FURTHER STUDY

1. Bliss, *Financial and Operating Ratios in Management.*

2. Finney, *Principles of Accounting*, chaps. iv and v.

3. Barrett, "How to Interpret a Balance Sheet," *Magazine of Wall Street*, August 30, 1919.

PART IV

SALES CONTROL

CHAPTER XIII

SALES RESEARCH AND ANALYSIS

Analysis of Marketing Problems

Marketing is the process by which goods pass from producer to consumer. The problems to which this process gives rise may be divided into three broad groups: those relating to the sale of goods; those relating to the purchase of goods; and those relating to the transportation of goods purchased and sold. The relative importance of these groups varies from firm to firm. In many firms each group is of sufficient importance to make desirable a separate department for its administration. In such cases we find a sales department, a purchasing department, and a traffic department.

Although we will assume that typically these separate departments are desirable, our discussion will deal with sales, purchasing, and traffic operations independently of the organization by which these operations are administered. In a manufacturing business the purchasing department is sometimes under the jurisdiction of the production manager, and in a mercantile firm, such as a department store, the selling and buying operations are ofttimes under the jurisdiction of the same executive. In some firms the traffic department is under the sales manager, office manager, or production manager. In many firms traffic is not recognized as a distinct function, and, consequently, a department is not maintained for its administration. These variations in organization are of interest to us as students of administration, but are only of secondary importance to us in our present study of the use of standards and records in controlling marketing operations. Moreover, many of the activities we will need to consider in discussing the control of marketing operations are not under the control of the sales, purchasing, and traffic departments even when these departments exist.

Requirements for Control of Sales Operations

The effective control of sales operations requires the following:[1]

(1) Sales research and the maintenance of records of sales operations. By these means the data needed in the preparation of a sales program are secured.

(2) Preparation of a sales program and the planning and scheduling of sales so that each department will know the possible sales requirements and can plan its operations so as to bring about co-ordination of departmental activities.

(3) Planning and execution of a sales campaign for the procurement of the sales orders called for by the sales program.

(4) Preparation and enforcement of a standardized procedure which will result in the prompt and efficient satisfaction of sales orders.

(5) Preparation and use of sales reports providing the information necessary for the carrying out of (1) to (4) inclusive.

Sales Research

The information sought through sales research can be classified roughly into two groups: (*a*) that relating to market conditions, and (*b*) that relating to past sales. Data concerning market conditions can be subdivided into two groups: (*a*) those relating to market conditions in general, and (*b*) those relating to the market conditions specifically and directly affecting the commodity or commodities offered for sale by the business carrying on the research.

Experience has shown that business is subject to alternating periods of prosperity and depression. This is so true that the

[1] In the present and future chapters, when stating the requirements for control of departmental activities, we are thinking primarily in terms of standards and records, and not necessarily in terms of departmental administration.

business cycle really represents business "normalcy." The business cycle may be defined as the more or less periodic oscillations from prosperity to depression, and upward again to prosperity. The individual firm must adapt its operations to the business cycle if it is to be most prosperous. Business operations must usually be planned some time before their performance. If a business is to adapt its operations to cycle changes, therefore, it must not only know present market conditions but must also have information from which it can judge future conditions. Consequently, business firms are constantly seeking information which will indicate the business trend. Economists and statisticians have given much thought during recent years to the search for indexes of business conditions. The more commonly used indexes can be divided into two classes: (1) those which anticipate the trend of the cycle, and (2) those which reflect the trend.

The information which is commonly used for this purpose is given on page 99. The first three of the items given on this page, which show respectively the condition of the stock market, the steel industry, and the agricultural industry, usually anticipate the trend of the cycle. The professional traders on the stock market are constantly studying conditions and by this means attempt to anticipate changes in specific industries as well as industries as a whole. Their combined judgment is worthy of consideration, although there are many upward and downward swings in the stock market which are not due to fundamental changes in industrial conditions. The steel and agricultural industries form such an integral and fundamental part of our economic organization that a material change in their prosperity almost invariably affects industrial conditions as a whole.

The remaining items given on page 99 reflect the cycle trend, for a change in industrial conditions causes a change in these items. Statistical data covering past cycles seems to show also that cycle changes affect these items in a fairly definite order. Consequently, by studying these items it is possible to foretell to some degree the stage of the cycle at any specific time.

We are not primarily concerned here with the method by which this information is used in judging cycle trends nor with the reasons why it is thought useful for this purpose. For a discussion of these points the reader is referred to texts on business forecasting. Our object is only to indicate that such information is necessary in sales planning, and that standards and records are necessary in its compilation and interpretation. In fact, these indexes are another illustration of standards.

The information showing the market conditions for the product of a firm is of a more specialized nature than that which we have been discussing. As indicative of the general nature of such information the following is suggested.

1. Information concerning the position of the company's product in the business cycle. All products are not affected at the same time and to the same extent by cycle changes. When a depression begins the demand for and price of some products are affected very quickly. The market for these products usually improves very early in the upswing of the cycle. Other products are affected relatively late in the downswing of the cycle, and are slow to recover when the upswing of the cycle begins. Each company should seek to ascertain the relation of its product to the general average as represented by the cycle. It will then be able to plan accordingly.

2. Information concerning the present and probable activities of the class or classes of business which are customers for the company's product. For example, a producer of building supplies finds useful information concerning the building permits issued in the various cities. The volume of construction which may be expected and the consequent demand for building supplies are indicated by the amount of the permits granted.

3. Information concerning inventories in the hands of those who are intermediary of the business in question and the consumer. For example, the producer of building supplies would

be interested in the quantity of materials in the hands of dealers since it is from these inventories that the demands of the builders will be supplied. If dealers have excessive inventories, as is often the case immediately following a depression, the producer may not feel the effects of an increase in consumer demands for a considerable period of time after this increase begins.

4. Information concerning the total potential demand for the product of the company. There is usually a saturation point for all products, and a producer must keep this point in mind in planning a sales program.

5. Information concerning the extent to which the potential demand is satisfied by competitors and the possibility of overcoming this competition.

6. Information concerning possible changes in design and quality of product which are necessary to meet changing demands of consumers and competition.

7. Information concerning the most effective and most economical methods of marketing the product of the company. The information of this kind obtained by a study of market conditions will need to be supplemented by information obtained from a study of past sales and expenses.

Much other information of a similar nature to the foregoing will be found useful in specific cases. There are scarcely any limits to the possibilities of market research. Each firm must limit its own activities in this connection, however, by balancing the cost of obtaining additional information against the value to be obtained from the use of the information. A definite and profitable use for information should be seen before expense is incurred in its procurement. In a discussion of this kind it is possible for us only to indicate the importance of such research, and give a glimpse of its possibilities. For further discussion the reader is referred to texts on marketing and sales management.

Market research may be carried on in various ways. The sales department may have staff assistants who carry on this work. It may be carried on by a special research department or by the statistical department. Technical research concerning design and quality of products may be carried on by the engineering department or a merchandising department equipped to do this work. It is the opinion of the author (see p. 95) that it is usually most satisfactory to have all research of a commercial nature under the control of the statistical department, if this department is equipped with a competent staff. It will, of course, need to co-operate with the other departments, especially the sales department, in the performance of its task. Much of the information needed concerning general business conditions can be obtained from statistical organizations who specialize in the compilation of such data.

Information concerning Past Sales

Two kinds of information concerning past sales are needed: (1) information showing sales analyzed according to the classifications set up for administrative purposes, and (2) information showing the effect on the financial condition of the business of the sales made under different terms and conditions. The latter class of information is provided by the accounting records and financial reports, and is not procured by sales research in the strict sense of the word. The information provided by these records and reports, however, may be of service in sales planning and operating. The accounting for different kinds of sales is discussed in the next chapter.

Classification of Sales Data

It is not possible to give an arbitrary classification of sales data or even to discuss all the various classifications which may be made. The proper classifications in any specific case depends on the organization of the business, the nature of its operations, and the desires and needs of its executives. Some of the customary ways of classifying sales data are:

1. By commodities or departments
2. By selling units

3. By territories
4. By salesmen
5. By terms of sale
6. By method of delivery

Most firms will not need to maintain all of these classifications. Each of these is useful to some firm, however, and most of them find it desirable to have two or more of these.

Commodity or Departmental Analysis

One of the most useful classifications of sales is that by commodities. Such a classification gives very definite information with which to check results and to plan sales campaigns. If purchases and inventories can be classified in the same manner, it is possible to obtain gross profit on each commodity, and this affords a desirable check on the profitableness of each commodity sold. If expenses can be allocated so that they can be classified in the same manner, the net profit made on each commodity is obtained, and this affords excellent cost and profit statistics. In a few lines of business such a classification is possible. For example, in a firm selling only coal, wood, and ice, a commodity analysis of sales, purchases, and inventory is easily made and expenses can be allocated to commodities without great difficulty.

In a business dealing with many articles, such an analysis is impossible. In such cases it is customary to group items of a similar nature into departments, and to classify sales, purchases, and expenses on a departmental basis. For example, in a large department store, there may be a grocery department, shoe department, men's clothing department, women's department, furniture department, etc., with sales, purchases, and expenses classified accordingly. In some firms where it is not satisfactory to have departments, commodities may be classified into groups, and gross profit obtained on each group. For example, a foundry may group its castings according to weight and design, and classify its costs and sales on this basis.

Analysis by Selling Units

A firm which has its sales force organized into definite administrative units will find useful an analysis of sales by sales units. For example, some firms establish branches through which they market their goods. In such cases it is desirable to know the profit derived from each branch. To do this it is necessary to classify sales, purchases, and expenses by branches. This affords an effective check on the operations of each branch, and affords a means of judging the efficiency and ability of the manager of the branch. In many cases the manager is given a percentage of the profits made by the branch. This plan affords an incentive for him to manage the branch as efficiently as possible.

If a firm has a separate organization for export trade, the sales and costs of this unit should be shown separately so the net profit or loss on export trade can be obtained. If the sales organization is divided into divisions or districts, it is desirable to know the sales of each.

Analysis by Territories

Sometimes it is useful to have a territorial analysis of sales. The territory used as the basis for the analysis may be a state, or it may be the territory covered by a salesman. Such an analysis may be desirable for the purpose of checking the efficiency of the salesmen, or for planning future sales. The conditions in different states may affect the possible future sales. For example, the poor crops in a particular state may indicate that the probable sales in that state for the coming year will be 50 per cent less than during the preceding year. If sales have been analyzed to show the sales in this state during the past years, the estimated sales for the coming year can be obtained by subtracting the estimated decrease. In the same manner, the probable increase of sales in the prosperous states can be determined. Again, a company may know from observation and investigation, or from statistics which they have available, that the potential sales of the commodity which they sell in a given territory are a certain amount. If sales are analyzed to show past sales in this territory, the company can determine how far it fails to obtain the amount of sales which is possible, and can judge whether additional effort should be spent in this territory.

Analysis by Salesmen

In large retail stores it is customary to pay the salesman, in addition to his stipulated salary, a commission on sales made. To determine the amount of this commission it is necessary to analyze the sales by salesmen. Such an analysis not only serves as a basis for paying the salesmen but also serves as an efficiency record for the salesmen. The information shown by this record is useful in selecting employees for promotion. Not only retail salesmen, but also traveling salesmen for jobbers and manufacturers, may be paid a commission on the sales which they make. In some cases the cost of the goods sold by each salesman is determined, and he is given a percentage of the gross profit made on his sales. This method is employed to encourage the salesmen to sell the lines of goods on which the greatest profit is made.

Analysis by Terms of Sale

The treasurer of a company must plan to secure the funds necessary to pay for the goods purchased and for the expenses of the business. A large part of these funds must come from the customers. The length of time which the business must wait after sales are made before it will secure payment depends upon the terms on which the sales are made. That the treasurer may estimate the funds which may be secured from the sales made, it is necessary that he know the amount of sales made on each terms offered by the company. In some companies, therefore, it is desirable that sales be analyzed to show the terms of sale.

Analysis by Method of Delivery

Some firms deliver goods by various methods. Large retail stores, for example, may deliver (1) over the counter, (2) by delivery trucks, (3) by messenger, (4) by mail, and (5) by express or freight. An analysis of sales by methods of delivery is useful (1) in judging variations in delivery costs from period to period, (2) in estimating the selling cost of a proposed sales program, (3) in planning equipment and personnel to meet the sales program after it is adopted. Many stores have found that their delivery costs have steadily mounted during recent years. This is due, in part, to the decreasing number of customers who carry their purchases. It is due, in part, to the increasing distances covered by the delivery trucks, resulting from the expanding territory covered by large stores. Many stores have found it advisable to place limitations on their delivery service, and to instruct salesmen to encourage the customer to take his purchases with him, in so far as this can be done in a politic way. An analysis of sales by method of delivery will show tendencies, and this information will show when and where remedial measures should be taken.

Relation of the Sales Analysis to the Accounting Records

It is usually not practicable or feasible to obtain from the formal accounting records all the analyses of sales desired. Some of these analyses may be obtained from statistical records kept in the various departments, or they may be obtained by a central statistical department. The operating department may keep a record of the method of delivery. The advertising manager may have the sales tickets tabulated in his office to indicate sales by territories. Other officials may record other data which they need. In many cases tabulating machines are used to collect the statistical data needed by the various departments. By means of cards which are punched to indicate various classifications of data, and are then assorted and assembled, it is possible to obtain various kinds of information. In case considerable statistical information is necessary, the use of tabulating machines is profitable. The method of using such machines has been discussed in chapter v. Central control of the collection of all statistical data is usually preferable, for reasons previously stated (see p. 92).

Analysis of Sales Returns and Allowances

In nearly all firms some goods are returned by customers and allowances are claimed by customers because they are dissatisfied for some reason with the goods they receive. The proper control of returned sales and sales allowances requires (1) that a systematic method of handling the claims be followed to prevent the granting of unjust claims; (2) that a proper analysis of such claims be made; (3) that the cause of the dissatisfaction of a customer be ascertained, and the responsibility for it be fixed.

Some firms have a claims department which handles all claims of customers. Usually this department is under the control of the sales department. When a separate department is not maintained, some executive in the sales department is held responsible for passing on the claims. Before granting a claim, proper investigation should be made to determine its validity. If a customer claims a shortage in the goods shipped, the shipping and billing records should be examined. If an overcharge is claimed, a comparison should be made of the sales invoice and the price quoted. If it is claimed that the goods are below quality, every effort should be made to ascertain the quality of the goods shipped. If it is claimed that the goods arrived in a damaged condition, it should be ascertained whether they were improperly packed or improperly handled by the transportation company.

Analysis and Disposition of Claims

The investigation of a claim will result in one of the following decisions:

1. That the customer's claim is valid.

2. That it is impossible to ascertain whether the claim is fair or unfair. This may be due to inadequate records on the part of the seller, or it may be because the facts can only be in possession of the customer, or because the records of the seller and the customer disagree, and it is impossible to determine which is correct.

3. That the customer's claim is not a valid one.

In the first case, the claim should always be allowed. In the second case, most firms follow the policy of giving the customer the benefit of the doubt. It is thought that the good will of the customer is worth more than the loss incurred by allowing the claim. In the third case, if the customer is sincere, and believes he is entitled to the claim, it may be wise to grant it and retain his good will. The size of the claim and the value of his business will help to determine the decision. If it is thought that the claim was made with the purpose of obtaining that to which the customer is not entitled, it should not be allowed. A customer who will make such a claim is an undesirable one, regardless of the amount of his business. The task of the claims department is a difficult one, for it is often hard to obtain information by which to determine the justness of the claim, and it is harder still to ascertain the intention of the customer in making the claim.

If, as a result of the claim, the customer is permitted to return merchandise, or an allowance is granted to him, the cause for the claim should be determined so that responsibility for it may be fixed. Claims may be due to the fact that the goods were improperly manufactured, and are therefore of inferior grade. In this case, the responsibility should rest on the production department. Their poor quality may be due to a lack of care on the part of the purchasing department in the selection of goods for purchase. The shipping department may have packed them improperly with the result that they arrive in a damaged condition; or the shipping department may have packed the wrong article or the wrong number. The sales department may have misrepresented the goods inadvertently or consciously. In any case it is necessary to ascertain the cause, and to fix the responsibility, if measures are to be taken to remedy the condition. It is desirable to reduce such claims to a minimum, not only because of the loss incurred by granting them, but also because such claims indicate dissatisfaction on the part of customers, and may lead to a loss of their trade.

In ascertaining the amount of the claims for which each department is responsible, it is necessary to keep a record showing an analysis of claims by causes. This record is usually independent of the financial records. When a claim is allowed, a credit memorandum is issued to the customer. A copy is retained, and on this copy there should be indicated the cause for the claim. From this copy an entry can be made on a columnar record ruled to show the principal causes of claims as shown by past experiences. A miscellaneous column will take care of unusual cases. At the end of each month the columns of this record will be totaled to show the amount of the claims due to each cause. In a small business the returned sales and the sales allowances may not be sufficiently large to make desirable such an analysis as that outlined above. In any business where they amount to any considerable sum, such an analysis is profitable.

In the ledger records sales returns and allowances may be recorded in one account, but this is not desirable, since a sales allowance is a total loss, while a sales return may represent only a partial loss, for the goods returned usually have some value. An increase in sales allowances is usually more significant, therefore, than an increase of sales returns, although both are undesirable. In a small business, or one in which there are few returns and many allowances, or vice versa, one account may be satisfactory. If the sales accounts are classified by departments, commodities, or by any of the other means explained in the foregoing discussion, it is necessary that the sales returns and sales allowances be classified in the same manner, and accounts be set up to maintain this classification.

QUESTIONS FOR CLASS DISCUSSION

1. This chapter introduces a survey of the use of standards and records in controlling administrative activities. What reason can you see for considering sales operations first?
2. Explain and illustrate how standards and records are of service in forecasting market conditions.
3. James Smith, a student in accounting, states that he desires to train for public-accounting work, and he is not interested in market analysis, for this is in no way related to his future work. Do you agree?
4. In what way is the controller related to market analysis and sales research?
5. "A business should have information showing the position of the company's product in the business cycle." What does this mean, and of what value is such information? How can such information be secured?
6. Mr. Brown, president and sales manager of the Brown Automobile Company, requests his statistical department to secure for him the following information:
   a) the number of persons engaged in each profession and in each line of business in each state in which the company has an agent.
   b) the number of persons in each state receiving a net income of $2,000 or above.
   c) the number of cars of the Brown Automobile Company sold in each of these states.

   Explain the methods by which this information may be obtained for Mr. Brown.
7. Explain why each of the items of information called for in the preceding question is desired by Mr. Brown. Can you think of any other information which might be used in planning his sales campaign? If so, explain how it will be obtained.

8. Seven different kinds of information are suggested as useful in showing the market conditions directly affecting a specific product. Illustrate how each kind of information can be of service to a firm.
9. The New York Department Store has ten departments. There is a head of each department who is paid a nominal salary, and in addition is given a percentage of the profits of the department. Explain what is necessary to make this plan effective.
10. Satisfactory results have been obtained from paying a bonus to the heads of departments, and the store desires to work out a similar plan for the payment of sales clerks. Explain how this may be accomplished, and show in what way the plan used in paying the clerks will be different from the plan used in paying the departmental heads.
11. The National Manufacturing Company has ten branches, each of which is under the management of a branch manager. It desires to encourage the branch managers to exercise more efficient administration by giving them an interest in the profits. Outline a procedure for doing this. Outline a similar procedure for the salesmen of the company.
12. The customers of the King Department Store have complained because of the slow deliveries of merchandise which they have purchased from the store. The general manager has requested the superintendent of the delivery department to make plans to give more efficient service in the future. What information will be needed to do this? How may it be obtained?
13. The Harland Department Store finds that it needs the following analysis of sales: (1) by salesmen; (2) by departments; (3) by terms of sales; (4) by methods of delivery. Explain how each of these analyses may be obtained.
14. Explain and illustrate the use which a claims department may make of accounting and statistical records.
15. What problems arise in the handling of sales returns and sales allowances? What methods may be employed to control their amount?

EXERCISE NO. 21

The Templar Tank Company manufactures and sells three types of steel tanks and two types of wood tanks. In addition to its tank business, the company acts as a jobber for two types of steel water troughs, and has the exclusive sales agency for one of these types for the entire country.

The company sells to jobbers and brokers in foreign countries and to retailers in the United States; but a large percentage of its domestic sales is made direct to the consumer. Although the major part of the company's sales are from stock made or purchased in anticipation of orders, both tanks and troughs are made to the order of the customer.

One type of wood tank is manufactured under patents owned by the company, as is one type of steel tank. One type of steel tank and one type of wood tank are sold under trade-mark names.

The company receives orders direct from customers who visit the salesrooms at Chicago, also direct from customers by mail, but the sales of the company are largely made by traveling salesmen. Sales are made on open accounts and for notes receivable, and customers are asked to make contract deposits on large special orders.

Required

1. Write a report addressed to the president of the Templar Tank Company explaining:
   a) The analysis of sales which you think desirable for his company.
   b) The purpose of each analysis.
   c) The method by which the analysis should be made.

EXERCISE NO. 22

The controller of the James Department Store, after making a study of the methods of sales control employed by the store, recommends the collection of the following sales data:

1. Amount of daily sales of each clerk in each department.
2. Number of daily transactions performed by each clerk in each department.
3. Average amount of sales checks of each clerk in each department.
4. Analysis of sales returns by commodities and sales persons.

The controller asserts that this information will provide an effective check over sales personnel and will also assist in planning operations. The general manager and merchandise manager are doubtful about the utility of this information, and request the controller to submit a report showing how this information can be used in exercising sales control.

Required

Prepare this report.

EXERCISE NO. 23

On December 31, 1922, the ledger of the Marshall Mercantile Company shows a credit balance in the profit and loss account of $40,000.00, and a merchandise inventory account, based on inventory of merchandise at selling price, of $70,000.00, but an inventory of the same merchandise at cost would amount to $54,000.00.

The expense and income accounts for the year show the following balances:

Sales	$200,000.00
Discount on sales	3,000.00
Sales returns and allowances	1,000.00
Purchases	150,000.00
Freight on purchases	6,000.00
Discount on purchases	1,200.00
Shipping expenses	4,000.00
Selling expenses	10,000.00
Office and general expenses	20,000.00
Insurance	600.00
Taxes	400.00
Depreciation on office equipment	200.00
Depreciation on buildings	600.00
Interest on notes receivable	3,800.00
Interest on notes payable	1,400.00

On December 31, 1923, the accounts are closed on the basis of an inventory taken at selling price, amounting to $80,000.00. If this inventory has been taken at cost price, it would have amounted to $60,000.00.

Instructions

1. Prepare a statement of income and expense showing the correct profits for the year.

2. Prepare a statement showing the profit and loss account with the balance at the beginning of the year, and the entries and adjustments which should be made in it during the year with the resulting profit at the end of the year.

REFERENCES FOR FURTHER STUDY

1. Frederick, *Business Research and Statistics*, chaps. vii, viii, and ix.
2. Copeland, *Business Statistics*, chap. iii, Selection No. XIII.

CHAPTER XIV

ACCOUNTING FOR DIFFERENT KINDS OF SALES

Different Kinds of Sales

The various terms and conditions under which sales are made must be taken into consideration in recording them. Otherwise the correct effect of the sales on the financial condition of the business is not shown. From this point of view sales may be classified as follows:

1. Sales on account
2. Cash sales
3. C.O.D. sales
4. Instalment sales
5. Sales on approval
6. Sales for future delivery
7. Consignment sales
8. Branch sales

There may be some question whether (7) and (8) should be treated in a discussion of sales, since a transfer of goods to a consignee or branch does not constitute a sale. It is appropriate, however, to consider the method of making sales *through* consignees and branches in discussing the general problem of sales control. It is not probable that any one firm makes at any time all the kinds of sales listed above, but all of these are regularly made by different firms.

Sales on Account

Sales on *account* are those based on an unconditional contract which provides for payment in a relatively short time after the consummation of the sale. In the retail trade, payment for sales on account is usually made on the first day of the month following the one on which the sale is made. For example, sales may be made by a grocery store to a customer each day in the month. Payment is due for the total on the first day of the following month. In most cases, except the retail trade, it is customary to state the terms of sale on the invoice. In many cases, an option is provided by offering a discount for prompt payment, with the full amount due at a later date. For example, the terms may be 1/10, n/30, or 2/10, n/60. The rate of discount, as well as the length of time before the net amount is due, varies in different types of business, and even on different lines of goods in the same business. In some lines no discount is offered, all terms being for net payment.

There are no significant problems involved in recording sales on account except the method of recording the sales discount. Some contend that the discount should be subtracted from the sales price at the time of sale, and only the net amount recorded. Under these circumstances, discount would enter into the accounts only in the case of the customers who fail to take the proffered discount. It would then be shown as an income. Under the more customary plan accounts receivable are debited, and sales credited for the gross amount of the invoice at the time the sale is made. If a discount is taken, entry for it is made at the time of payment by debiting sales discount for its amount.

Cash Sales

In a retail business cash sales are usually entered daily in the cash records as a total. The total is obtained by adding the duplicate cash sales slips for the day. To make the monthly posting easier a "Cash Sales" column may be introduced in the cash book, and the total of this column posted to sales at the end of the month. When this method is followed, no entry is made in the sales record for cash sales. The total sales for the month are shown in the sales account in two amounts, the credit sales being posted from the sales record, and the cash sales from the cash record. This method is possible only when it is not desired to classify the sales. If a classification of sales is made by commodities, departments, or any other basis, it is necessary to have a classification of cash sales as well as of sales on account. It is usually not feasible to have as many cash sales columns in the cash record as there are classes of sales; consequently, the cash sales are recorded in the sales record for purposes of analysis. In this case, there is but one cash sales column in the cash record. The total of this column is posted to the credit of cash sales. In the sales record there is one column for cash sales, which shows the total cash sales. The individual cash sales are distributed in the analysis columns, and are included in the totals of those columns which are posted to the credit of the respective sales accounts. The total of the cash sales column is posted to the debit of cash sales, and should balance the credit to this account, which is posted from the cash record.

In a wholesale or manufacturing business no distinction is made between the recording of cash sales and sales on account. In each case, the sales invoice is entered in the sales record. This results in a debit to accounts receivable and a credit to sales. The cash received in payment is entered in the cash record. This results in a debit to cash and a credit to accounts receivable, and so cancels the debit made from the sales record. Since cash sales are usually not frequent in a wholesale or manufacturing business, this method is both desirable and feasible. In such a business, the one who makes the record of the invoice does not, as a rule, make the record for the cash, and it is more convenient to treat the sale and the payment as distinct and separate transactions.

C.O.D. Sales

When a sale is made with the agreement that the purchaser is to pay for the merchandise when it is delivered, the terms are said to be *collect* on *delivery* or as it is more frequently stated, *C.O.D.* Such sales are made in the wholesale trade when orders are received from customers to whom it is not desired to extend credit. They are made in the retail trade when a customer does not have a charge account, and has not sufficient funds to make payment at time of purchase. The procedure for handling C.O.D. sales is different in a wholesale and a retail business. It is necessary, therefore, to discuss separately wholesale C.O.D. sales and retail C.O.D. sales.

Wholesale C.O.D. Sales

When C.O.D. sales are made at wholesale, the customer usually lives in a different city from the seller, and the goods are delivered to him by freight, express, or parcel post. It is necessary to notice the procedure in each case.

When a C.O.D. shipment is made by freight, an order bill of lading is used. A sight draft is drawn on the purchaser and attached to the bill of lading. Usually the bill of lading with the attached sight draft is deposited with the local bank of the seller, and the bank transmits it to another bank in the city where the purchaser lives. The latter bank on receipt of the bill of lading with attached draft notifies the purchaser, who, by paying the draft, can obtain the bill of lading. This entitles him to obtain the merchandise from the transportation company. The bank to whom the purchaser pays the draft transmits the proceeds to the original bank. It credits the seller with the proceeds.

When a C.O.D. shipment is made by express, the express company will not deliver it until the purchaser pays the transportation charges and the value of the shipment. An invoice is made for the amount of the shipment, and inclosed in a special envelope provided by the express company. The envelope accompanies the package. When it reaches its destination, the express company notifies the purchaser to call and receive it, or delivers it to the purchaser. In either case, the purchaser is required to pay the amount of the invoice plus the express charges before the package is delivered to him. The express company remits the amount of the invoice to the seller by its express money order, deducting a charge for issuing the money order, unless this charge has been collected from the purchaser. If the seller desires the purchaser to pay the charges for issuing the money order to be sent him in payment of the shipment, he must indicate this on the C.O.D. envelope.

When a C.O.D. shipment is made by parcel post, a special ticket, provided by the post-office department, is attached to the package; this shows the amount to be collected before delivery is made. When delivery is made, the postmaster at the point of delivery mails the consignee a post-office money order for the amount shown on the ticket.

Accounting for Wholesale C.O.D. Sales

There must be some method of accounting for C.O.D. sales during the period intervening between the shipment of the goods and the receipt of the returns. The usual method is to debit such sales to accounts receivable and credit the sales account in the same manner as other sales. In the customers' ledger, instead of opening a separate account with each customer, all such sales are debited to a C.O.D. account, the name of the customer being written in the explanation column. When the returns from the sale are received, a credit is made to the C.O.D. account, the entry being made on the same line as the corresponding debit. The debit items which are not offset by a credit item give the balance of the account at any time. Sometimes an account is opened in the subsidiary ledger with the transportation company instead of opening the C.O.D. account. It is used in the same manner as the C.O.D. account.

To illustrate: It may be assumed that W. H. James, wholesale merchant, has made the following C.O.D. shipments:

December 25.	James King..............	$400.00
December 26.	Harvey Long............	200.00
December 27.	H. B. Chapman..........	380.00

On December 30 he receives $200.00 in payment of the shipment to Long.

At the end of the month of December his C.O.D. account will appear as follows:

C.O.D.

1920 Dec.	25	J. King	400	00	1920 Dec.	30	Harvey Long	200	00
	26	Harvey Long	200	00					
		H.B.Chapman	380	00					

Retail C.O.D. Sales

In a retail business, C.O.D. sales are delivered to the purchaser, and the sales price collected by the delivery men of the store. Some stores have found by experience that a considerable number of C.O.D. deliveries are refused by the purchaser, and are returned to the store. In such cases it is preferable not to make any record of C.O.D. sales until delivery is completed, and the collection for the sale made. The C.O.D. sales tickets are filed, but not entered until the collection has been made. The merchandise is turned over to the delivery department, where a memorandum record is made, charging the individual drivers for the C.O.D. packages given to them. At the end of the day the driver must return either cash or goods for the amount of the merchandise charged to him. The amount of the cash received is reported to the accounting department, and an entry can be made the same as if the sales had been originally made for cash.

If the C.O.D. sales returned are not numerous, an entry may be made each day, debiting the accounts receivable account and crediting Sales on the main ledger and debiting a C.O.D. account in the subsidiary ledger. The cash received each day from C.O.D. deliveries will be debited to cash, and credited to accounts receivable and the C.O.D. account. The balance of the C.O.D. account at any time will show the amount of the merchandise sold C.O.D. which is in the hands of the delivery department. This amount can be verified by comparing it with the amounts charged to the drivers on the records of the delivery department.

If the latter method of recording C.O.D. sales is followed, it will be necessary to make adjusting entries for C.O.D. deliveries which are refused. Such returns may be debited to sales returns, but it is preferable to debit them to the sales account, since they are different from the usual returned sale. In any case, the accounts receivable and C.O.D. accounts must be credited for the goods returned.

It would seem more correct from a theoretical point of view to have the C.O.D. account on the main ledger and not to affect the accounts receivable account with C.O.D. sales. This seems proper because the claims against customers for C.O.D. sales are not the same as those arising from sales on account. If C.O.D. sales, however, are to be recorded in the general sales record, it is more convenient to have the C.O.D. account a subsidiary account so that the total of the sales in the sales record can be posted to accounts receivable. Otherwise it is necessary to exclude the C.O.D. sales from the total in some manner. This may be done by having a separate column for C.O.D. sales. In this case the total of the sales on account column will be posted to accounts receivable, the individual items in the C.O.D. column will be posted to the C.O.D. account, and the total of both columns credited to sales. In this case it is unnecessary to open an account with C.O.D. in the accounts receivable ledger.

Instalment Sales

Instalment sales are those for which the payments are deferred and made in instalments. Sales on the instalment plan are made of real estate, furniture, books, correspondence-study courses, and many other commodities and services. By the use of this plan, sales can be made to a class of people who would probably never accumulate sufficient money to pay the entire cost of the article at one time. Such sales are made under varying conditions. In most cases the vendor secures the notes of the vendee, payable on the instalment dates. In many cases the vendor retains title to the property until the instalments are paid.

If a business makes other than instalment sales, the claims against customers arising from the instalment sales should be recorded separately from the accounts receivable or notes receivable arising from the other sales. There are two reasons why this separation should be made: First, receivables arising from sales made on customary terms are classed as a current asset, but claims against customers arising from instalment sales cannot be so classed, for they may not be paid for many months. Usually there are some payments which are to be made at the end of each month. Consequently, a part of the total claims outstanding may be considered as a current asset, but in the case of long-time contracts, the major part of these claims must not be so shown. Since they do not have the characteristics of a fixed asset, it is desirable that they be shown under a separate heading on the balance sheet. Secondly, it is always impossible to collect the total instalments due from all customers. Even though careful scrutiny be exercised over the credit extended, there will always be customers who will default in payment. As a consequence, there will be a considerable loss from bad debts, unless the manufacturer or retailer protects himself by retaining title to the property sold, and even in this case, there will be considerable expense in securing possession of the property and in reselling it. In many cases the expense will be prohibitive, and it will be regarded as better to lose the balance if it be small in amount. It is necessary, therefore, in valuing the amount due on instalments, to make a liberal allowance for losses arising from bad debts and the expense incurred in making collection. By having the instalment sales recorded separately, it is easier to determine what the total provision for bad debts should be.

Another problem which may arise in connection with instalment sales is the allocation of the profits as between the periods when the sales take place and the collections therefor are made. For income tax purposes, if the initial payment is less than 25 per cent, the vendor may distribute the profits in proportion to the collections made during each taxable period. From the point of view of sound accounting, the profits should be deferred in all cases, regardless of the amount of the initial payment. If a business makes extensive instalment sales as well as sales on regular terms, separate records should be maintained for the instalment transactions. Because of the frequent payments on account, it is often expedient to have a different form of record for accounts of customers to whom sales have been made on instalment.

Sales on Approval

Merchandise may be delivered to customers "on approval" with permission to return it within a specified time. Such sales are made frequently by publishing companies and retail stores. The method of recording such sales depends upon the terms of the sale. When books are sent on approval by a publishing company, it is usually with the agreement that the book is to be returned or payment made within a specified time. Under such conditions it is better not to record the sale until payment is made. A copy of the sales invoice can be filed under the date when the book should be returned or the payment made. If payment is made, the invoice is removed from the file, and the sale recorded. If the book is returned, the invoice is removed from the file, but no entry need be made in the records. The sales invoice may be filed for future reference, so that, if a customer abuses the privilege of securing books on approval, this can be detected from the file.

When wearing apparel is delivered to a customer on approval by a retail store, it is usually to a customer who has a "charge account," and, if the merchandise is retained, it is charged to his account. If the customer takes but one article with the permission to return it under certain conditions, it is customary to charge his account at once, and if the article is returned, a credit is made to his account. The reason for this procedure is twofold: (1) if only one article is taken, in the majority of cases it is retained, and, consequently, it is not difficult to make the necessary credits arising from those which are returned; (2) in most cases if the customer decides to retain the article he makes no report; consequently, no checking up is necessary if it is charged to his account at the beginning. If the customer takes two or more articles of merchandise with the intention of choosing the one he desires, no entry in the financial records can be made until the choice is made, and the other articles returned. In the meantime, a statement of the merchandise in his possession will be kept in a tickler file. As suggested in the case of a publishing company, it is often wise for the retail store to keep a record of the customers who return merchandise which has been purchased on approval, so that those who abuse the privilege may be detected.

Sales for Future Delivery

In some lines of business, orders for merchandise are received several months in advance of the date specified for delivery. There has been much discussion by accountants and business men concerning when such orders may be recorded as sales. Legally, they may be so recorded whenever an enforceable claim arises against the purchaser. This time is dependent upon the conditions under which the order is placed. Experience shows that such orders are likely to be canceled at any time before the goods are shipped to the customer, and, regardless of the legal rights of the seller, it is usually not expedient to attempt to enforce the claim against the customer arising under a canceled order. In most cases, it is better not to enter orders for future delivery as sales until the goods are shipped to the customers. There are, of course, special cases where entry can be made before the goods are shipped. One illustration of such cases is found in the printing business, where it is customary for the customer to leave his product in the warerooms of the vendor long after he has been invoiced for it. In this case, entry for the sale will be made when the customer is involved, regardless of the time of delivery.

Consignment Sales

When a merchant ships goods to another party to be sold by him for the account of the shipper the transaction is called a *consignment.* More technically, a consignment may be defined as "goods delivered by the party of the first part to the party of the second part for the purpose of sale by the party of the second part for the account of the party of the first part." It will be seen from the definition that two parties are involved in a consignment. The party who ships or consigns the goods is known as the *consignor*, and the party who receives the goods for sale is known as the *consignee.* Goods sent on consignment are termed *consignments-out* by the consignor, and are termed *consignments-in* by the consignee when received by him. Sometimes *consignments-out* are called *shipments.*

Relation of Consignor and Consignee

In their dealings with each other the consignor and consignee have the relation of principal and agent, and their actions are governed by the general rules of the law of agency. Each must comply with the contract which exists between them, and in the absence of a specific contract they are governed by the trade customs of the business in which they are engaged. The consignee, as agent of the consignor, must comply with the instructions of the latter so long as they are not inconsistent with the terms of their contract or the customs of the trade.

With reference to the goods, the relation between the consignor and the consignee is that of bailor and bailee, and is governed by the general rules of the law of bailments. Barring specific instructions or specific contract agreements, the consignee may conduct the consignment transactions for his principal on the same basis and in the same way as he would conduct them if the goods were his own. He is expected to exercise the same care in handling the goods as if they were his own. He must exercise ordinary diligence in protecting and safeguarding them. He is not liable, however, for damage from unavoidable causes, such as cyclones, destruction by unavoidable fire, and similar causes. What constitutes due diligence on the part of the consignee depends on the nature of the goods and the circumstances of the particular case. In general, the consignee is required to exercise the same degree of diligence in safeguarding the goods of his principal as an ordinary, reasonable man would use in safeguarding his own goods. The agent must keep the goods of his principal separate from his own goods and also the goods received from other consignors. If he mixes the goods of his principal with his own he does so at his peril. For example, under such circumstances, in case of partial loss the agent may be compelled to bear the entire loss on the assumption that the goods destroyed are his and not those of his principal, since he is unable to designate the latter.

Consignee's Lien on Consigned Goods

The consignee usually pays certain expenses in connection with the goods which he receives from the consignor. These include such items as freight, insurance, duty, handling charges, etc. The consignee in some cases makes advances or payments to the consignor prior to the sale of the goods. For all legitimate expenses incurred by the consignee, and for all advances made to the principal, he has a lien on the consigned goods. The consignor cannot reclaim the consigned goods until he has satisfied the claims which the consignee has against them.

The consignee usually receives a commission in payment for his services in selling the goods. When the goods are sold, he has the right to deduct from the proceeds all expenses incurred in connection with them and his commission, before remitting to the consignor. If the goods do not sell for sufficient to pay the expense incurred in connection with them, the consignee has a claim against the consignor for the difference. It may be well to mention that the commission of the consignee is calculated on the gross sales and not on the net proceeds of the sales.

Advantages of Consignments

The practice of selling goods by means of consignments is not as prevalent at present as it was formerly, but it still prevails in some lines of business. Most of the live stock shipped to the stockyards in the large cities is shipped on consignment. A considerable portion of the produce shipped to the city markets is sold in the same manner.

In many lines of business, the consignment method of sale offers advantages to one or both parties. The consignor retains title to the goods until they are sold, and this may be an advantage in case the credit rating of the consignee is doubtful. At the present time, when credit information is readily available this is not as important as formerly. In the case of perishable goods, it is an advantage to the consignee to receive them on consignment, since it enables him to shift all damages in connection with the goods to the consignor. In some lines of goods, like cigars, new brands are received on consignment while their merit is being determined. This enables the dealer to shift to the producer the risk incurred in introducing a new brand. As a consequence, it makes it necessary for the producer not only to produce an article of merit, but also to advertise it sufficiently to create a demand for it.

The Account Sales

After the consignee has sold the goods received from his principal, it is necessary that he render an accounting for the sale.

This accounting is usually rendered by means of a report known as an *account sales*. The account sales is similar in form to an invoice, and contains a summarized statement of all transactions pertaining to a particular consignment. It shows the quantity of the goods received, the sales made, the expenses incurred, and the balance or net proceeds. The disposition of the proceeds is also indicated, whether remittance is being made or the amount placed to the credit to the consignor.

Accounting for Consignments

Different methods are used in the recording of consignments, but the differences are in the main a matter of form, the final result being the same. In the following discussion only one method of recording consignments is discussed and illustrated. It is thought that this is sufficient for the purpose of the present discussion. At the end of the chapter, references are given where more complete discussions may be obtained.

The Consignor's Record

The chief interest of the consignor is to ascertain the net proceeds of the consignment. At the time the goods are shipped, there is no change in his financial condition unless expenses are incurred in making the shipment. The consignor still retains title to the goods, and by the shipment he merely changes their location. Consequently, he makes no record of the shipment in his financial records. A copy of the invoice sent to the consignee will be filed as a memorandum of the transaction. In some cases, an invoice of a different color is used for consignment shipments to eliminate the possibility of confusion with the regular sales invoice.

If any expenses in the way of packing, drayage, or insurance are incurred in making the consignment shipment which can be allocated directly to it, an account will be opened which may be termed "Consignment out [name of consignee] No. 1." This account will be debited with the expenses incurred at the time the consignment is made. When the consignee renders an account sales, the consignment account will be credited and cash debited if the consignee remits the proceeds. If the consignee does not remit in cash, accounts receivable, instead of cash, will be debited for the nèt proceeds. In any case, the balance of the consignment account will show the net returns from the consignment shipment. This balance may be transferred to the sales account or, if it is desired to keep the consignment sales separate, it may be transferred to a consignment sales account. At the end of the fiscal period this account will be closed the same as the sales account.

Illustration of the Consignor's Entries

To illustrate the entries made on the records of the consignor, the following simple consignment transaction is used:

R. B. Jones ships to J. M. King, to be sold on his account, two hundred units of N. commodity. Jones pays $40 for drayage and $60 for insurance on the merchandise. King pays freight and drayage, $135, and charges $60 for storage. He sells the goods for $1,500, charges a 5 per cent commission, and remits the net proceeds by New York draft. The following entries will be made on the records of the consignor:

1. At the time the merchandise is sent to the consignor:

Consignment out, J. M. King No. I	$ 100.00	
Cash		$ 100.00
Cartage $40.00, insurance $60.00, paid in cash		

2. At the time the account sales is received from the consignee:

a) Cash	$1,230.00	
Consignment out, J. M. King No. I . . .		$1,230.00
To record net proceeds of consignment as shown by account sales at this date		
b) Consignment out, J. M. King No. I	$1,130.00	
Sales		$1,130.00
To transfer net returns from consignment to "Sales" account		

For the sake of convenience, the foregoing entries are all shown in journal form. The reader can easily see the proper distribution of the entries as between the customary records of entry.

The Consignor's Inventory

If the consignor's fiscal period ends prior to the receipt of an account sales in full settlement, the goods on consignment as shown by the consignment invoice on file must be included in his inventory. He retains title to this merchandise until it is sold, and it constitutes a part of his inventory the same as the merchandise in his stockrooms. In arriving at the value of consigned goods, the expenses incurred in sending the goods to the new market may properly be included as a part of the cost.

The Consignee's Record

The consignee should keep a record which will enable him to discharge his liability to his principal when the goods are sold, and enable him to ascertain his earnings on the consignment transaction. When the consignment is received, the financial condition of the consignee is not affected thereby, so no entiries in his general accounts need to be made. A memorandum record of the goods received is made, and frequently this is made on a loose-leaf duplicate record in such a manner that the original copy when completed will serve as an account sales.

If, as is usual, the consignee incurs expenses in connection with the consignment, these will be debited to a consignment account. Usually the name of the consignor and the number of the account are a part of the account title. When the goods are sold, the commission of the consignee is debited to the consignment account and credited to an income account termed commissions earned. If storage charges are made, they should be debited to the consignment account and credited to a storage earned account. The receipts from the sale are credited to the consignment account, and debited to cash, or accounts receivable, as the case may be. The balance of the consignment account now represents the liability of the consignee to the consignor. If the consignee remits in cash, the consignment account will be debited and the cash account credited. If the proceeds are to remain to the credit of the consignor, the consignment account will be debited and accounts payable credited.

The commissions earned and storage earned accounts will be closed into the profit and loss account at the end of the fiscal period.

Illustration of the Consignee's Entries

To illustrate the entries made on the records of the consignee, the simple example given on page 304 will be used. The entries on the records of the consignee will be as follows:

1. On the receipt of the consignment:		
Consignment in, R. B. Jones No. 1	$ 135.00	
Cash		$ 135.00
Paid freight and drayage on consignment of R. B. Jones		
2. When consignment is sold:		
a) Consignment in, R. B. Jones No. I	$ 135.00	
Commissions earned		$ 75.00
Storage earned		$ 60.00
Commission and storage charges on consignment of R. B. Jones		
b) Cash	$1,500.00	
Consignment in, R. B. Jones No. I . . .		$1,500.00
To record sale of the consignment of R. B. Jones		
c) Consignment in, R. B. Jones, No. I	$1,230.00	
Cash		$1,230.00
To record payment of proceeds of consignment No. I of R. B. Jones		

The foregoing entries are made in journal form for the sake of convenience.

The Consignee's Inventory

At the end of the fiscal period the consignee must be careful not to include in his inventory any goods he has received on consignment. He does not have title to these goods; consequently, they do not represent an asset to him. The expenses he has paid in connection with the consignment will be shown on his Balance Sheet, since they are an accounts receivable. They should of course be shown as a separate item and not be confused with customer's accounts.

Branch Sales

Merchandise may be transferred from the parent company to branches on various terms and under various conditions. From the point of view of accounting, it is preferable that it be transferred at cost, but there may be administrative reasons why this method is not desirable. Consequently, it may be transferred at selling price or at an arbitrary price, which is more than cost, but less than selling price. In any case, such a transfer does not represent a sale in the usual meaning of this term, and should not be so recorded. It represents only a change in the location of the merchandise stock. The accounting procedure involved in the handling of goods shipped to branches will be explained in the chapter on "Branch-House Accounting" (see chap. xxxviii).

QUESTIONS FOR CLASS DISCUSSION

1. "Sales differ not only with respect to their effect on the operations of the business but also with respect to their effect on the financial condition of the business." Explain.
2. Mr. X, a student in accounting, asserts that he is not interested in the methods of recording sales of various kinds, for this is a task of the accountant, and he does not expect to be an accountant. What about it?
3. In examining the records of the X Wholesale Company, you find that the accounts receivable of the company are $100,000. What methods

might you use to judge the desirability of the company carrying this amount of accounts receivable?

4. This Chicago Department Store makes 25 per cent of its sales for cash. It is necessary that the cash sales be analyzed by departments to make possible the calculation of departmental profits. Explain fully how cash sales will be recorded so as to secure this analysis. How would the same analysis be secured in a wholesale company?
5. On December 31, 1923, the records of the Universal Publishing Company show that books of an invoiced value of $10,000 are in the hands of customers for approval. The production cost of these books is $6,000. How would you show this situation on the balance sheet and statement of income and expense?
6. The Chicago Mail Order House agrees that any goods which are not satisfactory can be returned at the expense of the company. How should such expenses be treated by the company?
7. The Chicago Furniture Company sells furniture with the agreement that 20 per cent of sales price is to be paid at time of sale, and the remainder paid on forty equal instalments. A sale is made to Harold Maynard for $1,000. Explain how this should be recorded.
8. The Kingman Bond Company purchases second mortgages which are paid on the instalment plan. They receive a discount of 10 per cent at the time of purchase. How should this discount be shown in the records of (*a*) seller, (*b*) purchaser?
9. The Chicago Mercantile Company has both a wholesale and a retail department. It sells goods C.O.D. from each department. Explain how these sales should be recorded. At the end of the fiscal period, how should goods sold C.O.D., for which collections have not yet been made, be treated?
10. The X Manufacturing Company receives orders for goods several months in advance of the date when shipment is to be made. It manufactures these goods, packs the goods, and sets aside those belonging to each customer to await instructions to ship. How should these goods be shown on financial statements at the end of the fiscal period?
11. The Plimpton Press prints books in large quantities for publishing houses. The books are stored in the warehouse of the company, and are requisitioned by the publishing companies when needed. At the end of each month, the Plimpton Press invoices each company for all the books that have been shipped during the month. At the end of the year, each company is invoiced for all the books remaining in the warerooms of the Plimpton Press. Explain when the Plimpton Press

should enter these sales on their books. How should they treat the warehouse cost of the books held for customers?

12. State how consignments inward should be treated, when goods are to be sold subject to commission at the price at which they are consigned.
13. In closing the books of a corporation, how would you value goods consigned at selling prices to customers under an agreement by which consigness pay for goods as used?
14. In auditing the accounts of an engineering corporation, you find a number of engines have been shipped to dealers on consignment, against which the dealers have made deposits of 75 per cent of the invoice price. The engines were invoiced out to the dealers at the regular contract prices, being carried in accounts receivable, and the deposits being credited to the same accounts. In drawing the balance sheet of the company, how would you show these items?
15. The King Construction Company has two uncompleted contracts on hand. One for $1,200, estimated to cost $900, is three-quarters finished, and is already charged to the customer at $1,200 as of date of contract, the other for $2,000 estimated to cost $1,500 is half-finished, and no entry has been made therefor. What entries would you make to show these contracts properly in the accounts, and how should they be shown in the financial statements?

EXERCISE NO. 24

The X Manufacturing Company manufactures ten products. These products are sold through nine branches, located so as to cover the entire United States. The company desires to obtain the following information each month: (1) total sales of each product by all branches; (2) total sales of each branch of all products; (3) sales of each product by each branch.

Instructions

Write a report to the general manager of the company which will explain the following:

1. The accounts which should be maintained to provide the information which the company desires. If you think part of this information can be obtained in some other way more conveniently than by means of the ledger accounts, explain the method you think desirable.
2. The monthly reports which should be used to present this information to the general manager.

EXERCISE NO. 25

You are requested to make an examination of the accounting methods of the Modern Manufacturing Company. You find that the president of the company thinks that the principal problem of the company is to increase its volume of sales, and in an attempt to secure this increase, he has granted various terms of sale to customers.

During your investigation, you find among other things, the following:

1. That the company, in an attempt to insure itself that it will have sufficient volume of sales to make its contemplated production program possible, offers customers a 5 per cent discount on sales if they will place their orders for the next season six months in advance of the date when shipment is desired. These orders are recorded on the books at the time of receipt at their face value. When payment is received, the 5 per cent discount is recorded as a sales discount.
2. That goods are shipped to customers in advance of their needs with the agreement that they are to be paid for sixty days after the customer places them in stock. The company has followed the practice of recording these as sales at the time of shipment.
3. That goods are sent out on approval with permission to return if not satisfactory. The company records these as sales when goods are shipped.
4. That the company is in the habit of supplying goods on the principle of sale and return, taking payments by instalments covering principal and interest, the purchaser having the option to return the goods at any time, forfeiting the instalments paid. The firm records these sales the same as the sales on regular terms.
5. That goods are sold on instalment, title being retained in the company until all payments are made. The company records these sales in the same manner as all its other sales.

Required

1. Write a report to the President of the company explaining:
   a) Your objections, if any, to the method of handling each of the foregoing kinds of transactions.
   b) The method which you think should be employed in each case.

EXERCISE NO. 26

The Rapid Motor Car Company ships automobiles to its dealers or agents, at the same time drawing upon them, on sight draft with bill of lading attached. On December 31, 1923, you find that sight drafts, of a face value of $300,000, have been discounted with the Tenth National Bank, of New York. The dates of these drafts and of their being discounted were as follows: September 10, $20,000; October 5, $25,000; October 25, $40,000;

November 10, $25,000; November 30, $16,000; December 15, $65,000; December 30, $110,000; total, $300,000.

You completed the examination on February 15, and found that of these drafts only those bearing the dates of September 10, October 5, and October 25 had been taken up by the dealers. The cars are in storage, pending delivery to the dealer upon presentation of the bill of lading. How should the foregoing transactions be set up on the balance sheet of the Rapid Motor Car Company? In support of your answer an argument is required.

EXERCISE NO. 27

The income and expense accounts of the Frazer Mercantile Company for the years 1922 and 1923 show the following:

1922

Merchandise inventory, January 1, 1922	$150,000.00
Merchandise purchases	633,000.00
Merchandise sales, account	750,000.00
Merchandise sales, cash	10,000.00
Commissions to salesmen	30,000.00
Salaries of salesmen	30,000.00
Salaries of sales clerks	15,000.00
Rental	5,000.00
Stationery and postage	5,000.00
General expense (administrative)	22,000.00
Interest	4,000.00
Inventory, December 31, 1922	125,000.00

1923

Merchandise inventory, January 1, 1923	$125,000.00
Merchandise purchases	600,000.00
Merchandise sales, account	750,000.00
Merchandise sales, cash	10,000.00
Commission to salesmen	30,000.00
Salaries to salesmen	10,000.00
Salaries to sales clerks	10,000.00
Rental	5,000.00
Stationery and postage	3,000.00
General expense (administrative)	15,000.00
Interest	1,000.00
Inventory, December 31, 1923	125,000.00

Required

1. Prepare a statement of Income and Expense for each year.
2. Write a brief report explaining the reason for the difference in results for the two years.
3. Make appropriate comments concerning the expense classification maintained by the company.

REFERENCES FOR FURTHER STUDY

1. Esquerre, *Applied Theory of Accounts*, chaps. xvii and xviii.
2. Kester, *Accounting Theory and Practice*, chaps. xlvii, xlviii, and xlix.
3. Wildman, *Principles of Accounting*, chap. xxviii.

CHAPTER XV

THE SALES PROGRAM

Need and Importance of Sales Planning

The operations of all the departments of a business are conditioned by the volume of sales procured by the sales department. The volume of goods to be procured by the purchasing and production departments, the amount of capital to be obtained by the financial department, the number of employees to be secured by the personnel department, the expenditures to be made by all the departments are all dependent on the sales plans. The most effective means of expressing these plans is by the preparation of estimates of future sales. These estimates may be made very unscientifically, and be recorded quite informally, or they may be made as the result of a very careful analysis of all the factors involved, and presented by means of a formal report. But, in any case, estimates must be made in some form by all business firms as a basis of planning for the future.

If a sales estimate is not made and submitted to all the departments for their use, they must estimate as best they can what the sales volume will be, and its effect on their operations. This plan usually leads to two unsatisfactory results: (1) the departments in making their estimate of sales will take it for granted that the volume of business for the current year will be approximately the same as during the preceding year, or they will provide for an arbitrary increase or decrease; (2) the plans of the departments will not be co-ordinated with one another, for they will not be based on a common premise. The errors likely to result from this type of planning are apparent. It is the purpose of the present discussion to emphasize that there is a fundamental need for the sales estimate in administrative planning and control, and that all departments of the business should premise their plans on the same estimate.

Sales Budget the Result of Co-operation

Although the sales plans have an important effect on the operations of all the departments, the sales department should not exercise an undue influence on the policies of the business, or even in deciding the nature and volume of sales. The preliminary sales estimate, setting forth the desires and expectations of the sales department, should be examined, criticized, and revised, if necessary, by all the departmental executives before it is made over into the sales budget, which serves as a basis for the plans of the other departments. The sales budget, therefore, is the result of the co-operative efforts of all the departments of a business.

In some lines of business, sales possibilities may not be the primary factor in determining the volume of business a firm will plan to do. In such cases, other estimates may precede the sales estimate. In other words, the sales estimates may be made from some other estimate or estimates instead of the reverse, which is the usual method. For example, the sales possibilities may be greater than the production facilities. In such cases, the production budget, showing the possible production with the present facilities, or those which can be obtained on a long-time, profitable basis, may be made first, and then the sales estimate drawn off from it. This condition does not exist for many firms for any great length of time, but it may exist for many firms temporarily at the peak of the business cycle. Again, the volume of business a firm can profitably handle may be limited by its financial resources. This factor may be so important that a firm may find it expedient first to make an estimate of its financial possibilities, and work back from this to its departmental estimates. This, of course, requires a very careful consideration of the reacting effect of the changing volume of business on the financial requirements, for an increase in volume results in increased receipts as well as increased disbursements, and vice versa. Finally, a business may deliberately restrict its sales volume in order to limit its volume of business to conform with what it has decided is its "normal" growth. In this case, the sales estimate is based on its "normal growth curve."

Basis of the Sales Estimate

The information needed as a basis for the sales estimate may be classified under the following broad headings:

1. *Knowledge of general plans and policies of the business.*—This information is obtained from the decisions of the executive officers and board of directors.

2. *Knowledge of trade conditions.*—This information is obtained as a result of market research and analysis.

3. *Knowledge of the amount and nature of previous sales*, as shown by the accounting and statistical records. This information involves sales analysis and comparisons.

Most firms are making plans and adopting policies from time to time which affect the volume and nature of their sales. The following are typical of such plans and policies: New lines of goods may be added; old lines may be dropped; the production of special orders may be discontinued or may be increased; new territories may be entered; new branches or agencies established, or some of the present branches or agencies may be discontinued; new methods of distribution may be put into effect; changes in prices or terms may be made; additional salesmen may be employed; new personnel policies, affecting the productivity of employees, may be adopted.

It is essential that these changes when made or contemplated should be given careful consideration in the preparation of the sales estimate. There should be some effective means of communicating such changes to those responsible for the preparation of the estimate of sales, and care should be taken to see that their significance is understood. As stated in chapter i, practice varies in the placing of responsibility for the formulation of policies. They may be the result of the action of the general officers, or of the board of directors. In many cases, the directors act in response to recommendations of the officers. In such cases, the recommendations made are usually the result of conferences of the general officers. The head of the sales department is usually cognizant, therefore, of such plans and policies. He is prepared, consequently, to give effect to them in the preparation of the sales program If he delegates the task of preparing the sales estimates to subordinates, he must see that they have the necessary information concerning new policies. They also need this information for other purposes than the preparation of the sales estimate. It is fair to assume that the more information about the business an employee possesses, the more likely will his efficiency tend to increase.

Market research and sales analysis have been discussed in chapter xiii The information obtained by these means is fundamental in sales planning.

Terms in Which Estimate Is Made

Estimates of sales, purchases, and expenses are made by some firms for the purpose of financial control only. As a consequence, these estimates are made in terms of value. For the purposes of financial control, all estimates must be stated in terms of value, for the financial budget must, of necessity, be stated in financial terms. But for the purpose of sales, production and purchases control estimates are generally more useful if stated in terms of physical units. Otherwise, co-ordination of sales, production, and purchases is usually difficult, if not impossible.

In a manufacturing business, production orders are issued in terms of physical units, and the sales estimate must be translated into like terms before it can be used as a basis for placing these orders. For the production department to know that the sales department plans to sell $5,000,000 during the budget period is of little value if it does not know the number of units of each commodity which is to be sold. The factory may produce $5,000,000 of goods during the year, and yet have unfilled sales orders in some lines and an excessive inventory in others. If the sales estimate shows the sales of each line in terms of value, it is possible to translate this information into terms of physical units, if the unit sales price of all items in the line is uniform, and the unit sales price is uniform for the budget period.

In most cases, the same principle holds true in a mercantile store. A customer wants a specific size and style of article, and the merchant must anticipate his wants, and have the proper number of articles of each kind on hand. The need for a detailed estimate is not necessarily as urgent in a mercantile business as it is in a manufacturing business. In some cases, the customer does not know the specific article which he desires, and inspects the merchandise in order to make a choice. This is particularly true in the case of style and fashion goods. The buyer usually visits the market, and selects the kinds of goods which his experience leads him to believe his customers will purchase. It is not possible for him to purchase under the restrictions of a detailed budget. The most that can be done is to indicate quite definitely the amount to be invested in each major group of merchandise, and the sizes and types which past experience shows are demanded. Statistics of past sales should indicate to the buyer the general types of merchandise which will satisfy his customers, and the approximate demand for each type. Detailed estimates should be made for goods not subject to significant style changes, such as hardware, kitchen ware, etc.

Difficulty of Making Detailed Estimates

The necessity for making the sales estimate in terms of physical units makes the task of preparing the estimate much more complex in many cases. This is particularly true in the case of a manufacturing firm having a varied line. The different items of merchandise sold by some firms run into the thousands. To estimate sales and plan production for each of these items separately is a very difficult problem. In some cases, the number of items may be so great that this is well-nigh impossible.

If it is not practicable to make estimates for each item, there are at least two methods to follow. Under the first method the most significant items, which are usually those in which there is the greatest volume of sales, may be selected, and detailed estimates made for these, while the remaining items may be grouped into convenient classes, and group or class estimates made for these. A study of the sales of a firm handling thousands of items will usually show that the bulk of its sales is composed of a comparatively few items, and that the remainder are slow-moving items, in which the number of sales is few. If co-ordination of sales and production of the "significant" items can be secured, worth-while progress toward effective planning has been made, even though the remaining items are not brought under complete control. Although the budgets on the groups of slow-moving items will usually not be satisfactory from the point of view of co-ordinating sales and production, this is not so significant in the case of those items which have a low turnover, and presumably a comparatively low sales volume. It is usually possible to maintain an inventory sufficient to meet sales orders for such items without incurring any great amount of loss because of inactive capital. For the purpose of the financial budget, the group estimates are useful. If such a plan is followed, it will usually be found advisable to add more and more items to the significant list as the work proceeds. If such a study is begun, it will usually result in elimination of many of the insignificant items which it will be found are unprofitable and unnecessary. In the end, this process will usually result in the proper budgeting of all items.

Under the second method, "key" items are selected, of which the sales volume is indicative of the sales volume of a group of related items, and the ratio of the sales of the key items to the sales of the related items for a period of years is determined. Estimates are then made for the key items, and by applying the appropriate ratios, the estimates for the related items are obtained. To illustrate, there are twenty items in Group 10. It is found that item 6 is the most significant item in this group, and that the sales curve for each of the remaining nineteen items in the group harmonizes approximately with the sales curve for item 6. Furthermore, it is found that the sales for item 4 are 75 per cent of the sales of item 6, and that the sales of item 3 are 50 per cent. The sales estimate for item 6 is 200 units, therefore; the sales estimate for item 4 is 150 units; and the sales estimate for item 3 is 100 units. In the same manner, an estimate is made for each of the remaining items in Group 10. Estimates made in this manner can be only approximately correct, but in some cases, at least, they have been found sufficiently accurate for all practical purposes. This plan cannot be universally used, for, in many cases, key items cannot be found to which the other items bear a sufficiently constant ratio to make possible any satisfactory basis for estimates based on the relationship of key items to the remaining items in the group.

Relation of Seasonal Variations to Sales Estimate

If the sales of a firm are subject to seasonal fluctuations, it is not sufficient to make an estimate of the sales for the entire budget period unless this period corresponds to the seasonal changes. In addition to knowing the total sales for the budget period, it is necessary to know the distribution of sales by seasons, so that production may be planned accordingly. If sales peaks occur, the necessary inventory to satisfy these peaks may not be available unless they have been anticipated and production planned accordingly.

Many interesting problems arise in co-ordinating sales and production in a business subject to seasonal fluctuations. The first problem is to determine when the sales peaks occur, and whether they occur uniformly year after year. It is then necessary to determine the length of the production period. If absolute co-ordination is desired, a production *order* curve will then be prepared which will precede the sales *shipment* curve by the length of the production period. Usually this plan is not followed for two reasons:

1. Neither sales nor production can be planned sufficiently accurately to make such close co-ordination possible. Some allowance must need to be made for errors.

2. It is usually not profitable to make the volume of production fluctuate rapidly and extensively. It is usually better to produce in the dull periods in excess of current needs, and to use this excess to meet the needs of the prosperous period. The loss on inactive capital is not as great as the loss arising from irregular or intermittent production.

Some of the factors involved in determining the extent to which production should fluctuate will be considered later in the discussion of the production program.

Rigid versus Flexible Sales Estimate

There is a difference of opinion among executives as to whether the sales estimate should be a definite and rigid one, or whether it should be flexible with certain minimum and maximum limits. The first type is argued for by Mr. F. R. Blair, in describing the sales budget of the Thomas A. Edison industries.

> We may perhaps invite disagreement from many competent executives who would feel that any distribution above the estimated figures secured at a satisfactory ratio of expense was just so much greater gain. If the budget were regarded solely as a bogey this would undoubtedly be true, but the budget as used in our work not only marks a goal to be reached, but it also embodies an estimate of what we expect to be able to do, working at the highest pressure of which the organization is capable.
>
> If business conditions were to change within a single year for reasons which could not possibly be foreseen to such an extent as greatly to widen the market for our product, an increase in sales over estimated figures might be considered as a blessing, although with several obvious qualifications.

But so long as conditions remain reasonably normal, a large excess of sales over the estimate would be taken to indicate not an achievement in sales, but an inability accurately to gauge our market and the productive capacity of the selling machine.

This will be the better understood when it is realized that on the sales forecast the manufacturing department bases its program of personnel, plant maintenance, and plant development, if any is required, and the purchasing department bases its contracts for materials and its specifications for deliveries. These factors of a business of volume are not easily flexible. The submission of a sales estimate calling for manufactured output seriously below that which the development of demand through the year proved to be necessary might easily result in factory congestion, shortage of materials, increase in manufacturing costs, dissatisfied or even injured customers, and other factors detrimental to the welfare of the business.[1]

The flexible type of budget is discussed by Mr. Joseph H. Barber, of the Walworth Manufacturing Company, in explaining the sales planning of his company:

Each quota mark is not the maximum attainable; it may be exceeded under special conditions or by unusual effort of the sales department in some months. The quota is a "can" mark stimulating the managers to exceed the amount of order-takers' business it is known the territory should yield. In both his quota and his dead line, the manager conceives of his assignment in each case as a vital component part of the whole program, of his quota volume as very necessary for desirable profits, and of his dead-line volume as a very tangible "must" requirement. Each manager realizes that this dead-line amount of business is the initial basis of the works production program, which may be reasonably adjusted to an increase but which can only with difficulty be revised downward after commitments have been made. And, finally, each unit manager knows that if his territory is already well saturated, the attainment of his quota mark, but a slight margin beyond his dead line, will be recognized by all as evidence of quite as far a measure of real salesmanship as the full attainment of quota by another manager surrounded by greater opportunity.

The backbone of the plan, it will be seen, is the determination of the volume of the order-takers' business which may be derived monthly from the individual territories. If this volume be determined, the combined

[1] F. R. Blair, "Business Forecasting in the Edison Industries," *Administration* (January, 1923), p. 8. New York City: Ronald Press Company.

judgment of the local managers and the central office sales executives may be relied upon to determine what added amount of business may be procured in each territory through salesmanship.[1]

Some firms make the sales estimate the standard for compensation of those responsible for its attainment, but pay a premium for exceeding it. It will be noticed that this leads to the application of the premium system of wage payment to the selling department. Other firms prepare a sales estimate for the sales department which is purposely made high, so as to spur the salesmen on to greater effort, and prepare another one for the use of the production or purchasing department which states the sales at a lower amount. An application of this principle to a different type of budget is illustrated by the practice of some state universities in the preparation of their budget. One budget is made for submission to the state legislature. This is purposely made large, because they know by experience that the legislature will reduce it somewhat, and they prepare it with the expectation of its being reduced, and yet being large enough to meet necessary needs. A smaller budget is prepared for the use of the university executives.

Responsibility for Preparation of Sales Estimate

There is considerable difference of opinion among executives as to the unit of the organization which should be held responsible for the initiation of the sales estimate. It is usually granted that the sales department should have this responsibility, but there is general disagreement as to the specific unit of the department which should take the first step. There are some executives who will even deny that the sales department should start the process. Some contend that the chief executive is the only one with a sufficiently comprehensive picture of the business, as a whole, to be able to prepare the estimates. They contend that

[1] J. H. Barber, "How the Walworth Company Looks Ahead," *Administration* (June, 1923), pp. 660–62. New York City: Ronald Press Company.

he should prepare the original sales estimate, and then submit it to the sales department for consideration. An obvious objection to this plan is the customary inability of the chief executive to give to the preparation of the sales estimate or other estimates the time and thought necessary to produce satisfactory results. Moreover, it is not the function of the chief executive to perform administrative operations, but rather to direct and supervise them.

In a few firms the controller is held responsible for the preparation of all estimates. This is also unsatisfactory, for the controller cannot possibly be sufficiently conversant with all the operations of a business to prepare all the departmental estimates in an effective manner. Ordinarily, the controller will have a tendency to rely to a considerable extent on past statistics, and, consequently, the preparation of the estimates, if left to him, is likely to become more or less of a mathematical process. Although these and other plans may be employed by specific firms, it is being quite generally agreed that the preparation of the preliminary estimate of sales is the task of the sales department. With reference to the fixing of the responsibility within the sales department for its preparation, no arbitrary procedure can be established. In each case, the organization of the company, its selling methods, and its personnel must be taken into consideration.

In a department store, the departmental managers are usually held responsible for the preparation of the departmental sales estimates, and these are combined by the merchandise manager to make the estimate for the entire business. The merchandise manager will make such revisions in the estimates of the department heads as he thinks desirable before he prepares the combined estimate for submission to the budget committee. The departmental manager of course may consult with assistants in the preparation of his estimate. In a retail store, the sales estimate may be prepared by the owner or officers who are in direct charge of sales operation. If the business is sufficiently large to have assistant sales executives, these should be consulted in the preparation of the estimate. In a wholesale or manufacturing business, which employs traveling salesmen, each salesman may be asked to make an estimate of the sales in his territory for the budget period. Such estimates will, of course, have to be checked very closely, and revised by the central sales office in the light of the data which it should have available. In a business which sells its products through branches, each branch may be requested to make an estimate of its sales. These estimates, like those of the salesmen, should be carefully checked by the central sales office. When either salesmen or branches are requested to make an estimate of their sales, they should be provided with a record of their sales for one or more past periods in order to be able to use such data in making an estimate of future sales.

Those who favor the making of estimates by salesmen and branches contend that those in closest touch with the customers are best able to judge future demands. There are some companies, however, who will not rely at all upon the estimates of the sales force. Instead, they favor the collection of data by the central sales office, and the employment of special investigators who make a survey of the sales territory and report on possibilities. Using the data concerning population, industrial conditions, etc., and the reports of the special investigators, in connection with past-sales, they formulate the sales estimate. In some cases, after the estimate is prepared by the central office, it is sent to the branches or salesmen for criticism.

Revision of Preliminary Sales Estimate

After the preliminary sales estimate is submitted by the sales department, it is necessary for it to be studied by the executive heads of the other departments, and revised in the light of their information and judgment. In a manufacturing industry, it may need to be revised in the light of production capacity. It is undesirable to adopt a sales program which is beyond the capacity of the production department to satisfy, unless, of course, it is planned to purchase some commodities from outside sources. On the other hand, it is desirable to prepare a sales program which will utilize as much of the plant capacity as possible. Consequently, it is necessary to obtain data which will show production capacity, so this can be compared with sales demands. To secure accurate and comprehensive information on production capacity, it is usually necessary to obtain data which will show machine capacity. This may necessitate the preparation of a card for each machine used in the process of manufacturing, showing the operations performed on this machine, and its capacity in the performance of these operations. With this information at hand, it is possible to determine whether the quantities called for by the sales estimate can be produced, or whether the estimate does not provide for adequate production. If there is a lack of co-ordination, the sales estimate will be revised if possible.

Another important factor in deciding the desirability of the sales program proposed by the sales department is the estimated profit to be obtained from its fulfilment. It is not only important to see that the program as a whole is profitable, but also that the individual items it contains can be produced and sold on a profitable basis. To this end it is desirable for a firm to have cost figures by items if it is possible to obtain these at a reasonable cost. In some firms which handle hundreds of different items, it is not practicable to maintain accounting records which will provide such information continuously. Even though the records show cost of production by items, they do not usually show the selling and administrative costs allocated by items, and to make such an analysis is usually difficult. Many firms content themselves, therefore, with making periodical tests or studies to determine the profit-earning capacity of the different items which they include in their stock in trade. When a company carries only a few items, it is possible to maintain current records to provide this information.

If a firm has available either continuously or periodically information showing profits per unit of product, it can easily judge those items in the sales estimate, the sales of which it is desirable to increase, and those items the sales of which it is desirable to decrease or eliminate. It is not always possible to eliminate all items which do not show a satisfactory profit. In some cases, it is necessary, because of competitive conditions, to sell some articles to meet sales demands for a complete line of articles. For example, there may be ten different sizes and designs of article X. The King Manufacturing Company may find that it can produce and sell seven of these at a profit, but that it makes a loss on the remaining three. Its first thought is to eliminate these three, but it may find that the dealers to whom it sells find it necessary to keep all ten sizes in stock, and that these dealers desire to purchase from a manufacturer who will supply a complete line. Consequently, the King Company may find it necessary to carry the unprofitable items in order to have a complete line, otherwise it will lose the sales of its profitable items.

In the revision of the sales estimate in terms of profit, it is necessary to give careful consideration to the problem of providing complete lines, so that items will not be eliminated which are necessary to secure the desired volume of sales of other items. On the other hand, the sales departments have a tendency to overemphasize the necessity for complete lines, and care must be taken to prevent the carrying of too many unprofitable items. In some cases, the need for a complete line is not as real as it may appear.

In case it is judged undesirable to eliminate unprofitable items, two possible methods may be employed to decrease the loss ensuing from handling them:

1. These items may be pointed out to the salesmen and they may be urged to keep the sales of these items at a minimum. If the salesmen's salary is based on gross or net profit, this appeal can be made very effective.

2. It may be found profitable to purchase some or all of these items from other manufacturers rather than to produce them. Other manufacturers because they are producing in larger quantities, or for other reasons, may be able to produce these articles cheaper, and, if so, it is better to purchase from them than to try to compete and lose money as a consequence.

In revising the sales estimate in terms of profit, it is necessary to consider, not only the profit which has resulted from past operations, but also the probable profit which will result from the anticipated operations. Changes in method or volume of production, as well as changes in method or volume of sales, may affect materially the profit obtained. To estimate more accurately the effect of these changes on production or sales, it is well to consider, not only the cost of production or purchase, but also the selling and administrative expense, and the effect of the new program on these items. It is imperative that careful consideration be given to these factors in the revision of the sales estimate. The sales program must provide for the maximum profit that trade conditions will permit, consistent with the permanency of the business. Here is one of the vital points in making over the sales estimate of volume into a sales program. The management must decide, not only what increase in business is desired, but also what volume of business can be had at a maximum profit. Consequently, the estimated volume of each line, even of each class and kind of goods, must be re-estimated at the volume that will produce the greatest amount of profit.

Another important factor to be given careful consideration in the preparation of the sales program is the financial requirements of the program. After the sales estimate has been revised, taking into consideration production capacity or purchasing possibilities, profits, and the like, the amount of capital required to execute the program must be estimated. This, of course, requires a consideration, not only of the sales estimate, but also the relative estimates of production, buying, expenses, etc. If the financial requirements of the contemplated program are in excess of the capital which the financial resources of the business will permit to be expended, it will then be necessary to revise the sales program. This is on the assumption that in estimating the financial resources of the firm there has been included, not only the capital which it now has, but also all that which it is desirable or possible to secure.

Finally, the executives must consider whether the sales program is in harmony with its *normal* growth. Business men have learned during recent years that it is not always desirable to accept all the orders which they can obtain. Some firms have found it desirable to establish a normal or standard growth, and in prosperous times refuse orders which will increase the volume of business beyond the standard, while in periods of depression, they exert special efforts to increase sales volume so as to maintain the standard. Although it is ordinarily not desirable to follow such a plan blindly, it has decided merits. It leads to a conscious and determined effort to control the volume of business, rather than trusting to the vicissitudes of changing market conditions. It may prevent overexpansion, on the one hand, and undue contraction, on the other. The ability of a firm to maintain a standard growth will depend to a considerable extent on its volume of business, financial resources, and nature of its product. Such a standard should be established, only after very careful study of all the factors involved. The standard set should not be merely an arbitrary one.

Basis of the Sales Program

The most important factors to be considered in the revision of the sales estimate have been explained. No attempt has been made to treat of all the factors which may need to be considered in particular cases. To summarize, the sales program should be based on the following:

1. *Past sales* as reflected in the sales records on previous years.

2. *The general plans and policies of the business* as reflected by decisions of the executive officers.

3. *Trade conditions* as determined by sales research.

4. *The judgment of the sales unit*, or units, who make the original estimates.

5. *The judgment of the central sales office*, which reviews the original estimates, and makes such changes as it deems necessary.

6. *The production or purchasing capacity of the business as reflected* in the production and purchase estimates.

7. *The gross profit earning capacity* of the different lines or items.

8. *The selling and administrative cost* involved in handling different lines or items.

9. *The financial requirements of the program contemplated.*

10. *The normal or standard growth of the business*, if such a standard has been established.

11. *The co-ordination of all the departmental estimates* into a well-rounded program for the business as a whole.

12. *The sales budget which shows the volume of operations* which the sales department is expected to perform, based on the budget of the business as a whole.

The process of making the sales program is not a simple one. Rather a sales program must be thought of as a combination of several estimates. It is a statement of past experience, modified by future plans, which are in turn modified by trade conditions.

Control over Sales Budget

So many indefinite factors have to be considered in the preparation of the sales program that it can forecast only approximately the operations of the sales department. Consequently, the sales program must not be regarded as an arbitrary and unchangeable order to do definite things. A sales program is merely a statement of sales operations which seem possible and desirable at the time the program is made. If conditions change after the sales program is set up, then the sales program should be changed, so far as the contracts and decisions made under the program can be changed.

Frequent comparisons should be made between the actual and the estimated operations of the sales department. If the variations between these are sufficient, a revision in the sales program should be made. Frequent reports should be made providing these comparisons. These reports should not only provide a comparison of the sales budget as a total with the actual sales as a total, but should also provide a comparison of the actual and estimated performance of each unit of the organization. For example, a report should be prepared showing a comparison between the quota and the actual sales of each salesman. It is only by this means that definite responsibility can be fixed for variations in the total, and the fixing of such responsibility is necessary for control purposes. These reports should be studied carefully by the executives, and each executive should require his subordinates to explain their failure to meet their quota. In many cases, their failure may be due to unpreventable causes, but a frank discussion of these will be of assistance to both the executive and the subordinate. The failure of some firms to secure satisfactory results from their budgetary program is due to their failure to exercise control of their budgets after they are prepared. Budgets will not operate themselves. They are but administrative devices, and their effectiveness depends on the efficiency with which they are used.

If the sales budget is revised, it is necessary to revise the other budgets which are based on it. For example, a sales budget may be made for the first three months of the year, and a production budget prepared to meet the sales program. At the end of January, a comparison may show that the sales made are 25 per cent less than the estimated sales, and indications are that a like decrease will take place in February and March. The sales budget should be revised, and the production, financial and expense budgets changed to correspond if such changes are possible. Commitments may have been made which make a complete revision of the other budgets impracticable. Some revision is usually possible, however. The sales budget may need to be revised because of revisions made in other budgets. For example, if the production program has fallen down, making necessary a revision of the production budget, the sales budget may need to be revised because of the inability to secure goods to fill orders. Similarly, if the financial program has to be revised, a revision of the sales program may need to be revised because of a lack of funds to finance it.

QUESTIONS FOR CLASS DISCUSSION

1. Mr. Jones, president of the Jones Wholesale Company, states that it is impossible for a company such as his to make a sales estimate, for the sales fluctuate so much from year to year that no one can possibly tell what the sales will be. What about it?
2. The X Foundry produces castings according to the specifications of the customer which he submits with his order. It does not produce any goods in anticipation of orders. The general manager contends that it is impossible for the company to make a sales estimate, for it cannot know what it will sell until the orders are received. What is your opinion?
3. "The one vital point of contact between the selector of merchandise and the operating man who handles the order for the customers is that they both premise their work on the same expectancy or estimate as to the volume and character of business." Explain.
4. Give illustrations of general plans and policies of a business which may affect its sales estimate.
5. "Market analysis shows potential demand, while sales analysis, as reflected in the accounting and statistical records, show to what extent the potential demand has been satisfied and whether or not it is profitable to try to satisfy it." Explain and illustrate, showing how you would proceed to determine the extent to which potential demand has been satisfied, and whether it was profitable to attempt to satisfy it.
6. The sales manager of the Y Manufacturing Company states that he is interested only in the value of the sales made, and he sees no reason why the sales department should be required to show physical quantities of goods to be sold. He further asserts that if other departments need this information, it is their function to obtain it. Do you agree?

7. The sales manager of the Y Manufacturing Company decides that he needs to know the sales made in each state, and by each salesman in each state. He requests the accounting department to supply this information. The controller replies that the accounting department does not need this information for its use, and if the sales department desires it, it is the function of the latter to obtain it. Do you agree?
8. What would be the result of carrying the contentions of the sales manager and controller to their logical conclusions?
9. What advantages and what disadvantages may result from having the original estimate of sales prepared by the salesmen?
10. Explain and illustrate the factors which result in a revision of the sales estimate as prepared by the sales force.
11. "In revising the sales estimate in terms of profit, it is necessary to consider not only the profit which has resulted from past operations, but also the probable profit which will result from the anticipated operations." Explain concretely what this means.
12. "A sales program must be thought of as a combination of several estimates." Explain.
13. "In making a comparison between sales and estimated sales, it is necessary to interpret 'sales' to mean orders received rather than goods shipped." Why? Is this the usual accounting procedure? What effect will this plan have on the use of the accounting records in exercising control of the sales budget?
14. "The accounting records can provide quite useful analyses if these records are properly constructed and operated. The thing standing in the way of this is the conception of bookkeeping as a science of formulas for the all important purpose of arriving at net profit or loss." Explain.
15. Explain and illustrate how *standards* are used in the preparation and enforcement of the sales budget.
16. "It is possible that in some lines of business sales possibilities may not be the primary factor in determining the volume of business which a firm will plan to do." Illustrate.
17. "It is probable that the sales estimates will receive more serious consideration by the sales department if they are stated in terms of units rather than in terms of value." Why?
18. What factors should a firm consider in establishing a standard of normal growth?
19. "The following factors should be considered in determining the length of the budget period: (*a*) length of turnover period, (*b*) length of production period, (*c*) market conditions, (*d*) adequacy of statistical data

available." Explain how each of these factors affects the length of the budget period.

20. The chief difficulties encountered in the preparation of a sales program are (*a*) market fluctuations, (*b*) seasonal fluctuations, (*c*) inadequate statistics, (*d*) lack of standardization." Discuss.

EXERCISE NO. 28

The King Manufacturing Company has its general offices at Chicago. It has five factories located at Chicago, Cleveland, Boston, Philadelphia, and Kansas City. It has fifty sales branches located in the principal cities of the United States. These branches act as jobbers, and salesmen in the territory of each branch report to the branch manager. There are five district managers, and the branch managers in each district report to the district manager. The district managers report to a vice-president in charge of sales at the home office.

The company produces 15,000 articles in its factories, and sells 5,000 additional articles which are produced by other manufacturers. It sells 80 per cent of its product through its branches, and the remainder through jobbers. Salesmen reporting to the district offices make sales to jobbers. The branches keep in stock some of the goods which they sell, and send the orders they receive for the remainder to the factory to be shipped direct to the customer.

Required

Write a report to the president of the company discussing the following:

1. The value of a sales budget in administering the general operations of the company.
2. The method of preparing and enforcing the sales budget, showing the complete procedure to be followed, and including any forms which you think would be of service in enforcing this procedure.
3. The factors to be considered in selecting the goods to be carried in stock at the branches.
4. The sales analysis which you think will be beneficial in the preparation and execution of the sales program, and the method by which this analysis should be obtained, with particular reference to the responsibility for the preparation of each analysis suggested.

REFERENCES FOR FURTHER STUDY

1. F. R. Blair, "Forecasting in the Edison Industries, "*Administration*, January, 1923.
2. J. H. Barber, "How the Walworth Company Looks Ahead," *ibid.*, June, 1923.

CHAPTER XVI

SELLING EXPENSES

Relation of Selling Expenses to Sales

Making a formal statement of the sales desired does not produce the sales. Concrete plans must be made for the procurement of the sales called for by the sales program, and definite and energetic efforts made to carry out these plans. There must be a sales campaign as well as a sales program. The cost of the sales campaign must be carefully considered in preparing the sales program. There are few firms which could not increase their sales if they were willing to incur the necessary expense. Typically sales are desired only when profits will result, and the probable profits should be calculated before an attempt is made to secure the sales. Scientific sales planning involves a constant balancing of sales volume against selling cost.

Definition and Classification of Selling Expense

The selling process commences when the finished goods are turned over to the sales department in a salable condition, and it ends when the goods pass from the possession of the company in response to a sales order. The following steps are involved in this process: (1) storage of finished product, (2) bringing of the goods to the attention of prospective customers, (3) the procurement of sales orders, and (4) delivery of the goods to the buyer or transportation company.[1] The cost of the selling process constitutes selling expense.

The general principle is thus easy to state, but there are many cases where it is difficult to apply. There are many items

[1] In retail stores an additional expense arises from the alterations made to adapt goods to customers' wishes. Although this expense has some of the aspects of a procurement cost it is customarily treated as a selling expense since it is incurred after goods are under the jurisdiction of sales departments.

of expense which not only facilitate the sales process but in addition facilitate the operations of one or more of the other functional divisions of activities. It is often difficult to make a proper allocation of these. For example, in a department store the head of each department supervises both the buying and selling of his department. It is difficult to allocate the cost of his services between buying and selling expenses. In so far as possible, only those expenses which are under the control of the sales department should be treated as selling expenses. This rule fails to meet important cases, however, due largely to variations in organization. For example, the sales department may not have control of the delivery service, but cost of this service is a selling expense. The accountant must use his best judgment in specific cases. Efficient administration of standards and records can never be reduced to rule of thumb.

Selling expenses may be classified conveniently for purposes of discussion under the following heads:

1. Storage costs
2. Sales office expense
3. Salesmen's salaries and expenses
4. Packing and shipping
5. Advertising

Storage Costs

The procurement cost of merchandise ends when the finished goods are placed at the disposal of the selling organization. Presumably the purchasing or production department procures the finished product at the time and in the quantities called for by the sales program. It is the duty of the sales department to sell these goods in accordance with this program. If it fails to do so, the cost of its failure in the form of accumulating storage charges should be shown by increased selling cost. Only the storage charges which accumulate after the goods are ready for sale should be treated as selling expense. Sometimes goods are kept in stock for a considerable period of time before they are offered for sale. Lumber is often held ior "seasoning." Formerly dealers in alcoholic liquors held them for "aging." Tobacco is sometimes held for "curing." Storage costs in such cases are part of the procurement cost and are included in the cost of goods sold. In some firms the purchasing department is permitted to speculate. Consequently, it may purchase goods in excess of current needs when it anticipates a rising market. In such cases the storage costs on a finished product cannot be appropriately considered as selling expense. The better practice in this case is to charge the sales department with the market price of goods sold at the date of sale and show the difference between market price and purchase cost plus storage charges as a buying profit or loss. This shows the results of the operations of the purchasing department and does not penalize the sales department for the errors in judgment of the former.

In some firms it is not practicable to segregate storage costs of finished products. In a foundry producing on special order, finished castings are shipped shortly after they are produced. In the meantime they may be stored in one corner of the foundry or on the shipping platform. It is usually not practicable to estimate the storage costs incurred on finished castings and show these as selling expenses. In many manufacturing firms the finished goods are kept, for the sake of convenience, in the same storerooms with manufacturing supplies and materials, and it is not profitable to allocate the costs. Consequently, the entire costs are included in manufacturing expense. Where large quantities of finished goods are carried, however, the costs should be segregated, for information of value is secured thereby. If storage costs increase, it is important to fix responsibility therefor, and this can be done properly only when storage costs of manufacturing materials and of finished goods are shown separately. In a mercantile store the merchandise, on the selling floors at least, is in the hands of the selling force and it may not be practicable to segregate all the storage costs from selling costs. This is not significant, however, since the same executives are responsible for both classes of expenses in this case.

The principal items of storage cost are: (1) space, (2) wages of storekeepers, (3) insurance, (4) taxes, (5) interest. The cost for space is provided for by charging to storage costs a proper proportion of building expense. If separate storekeepers are employed, it is easy to obtain their costs. If those responsible for storage of goods are acting in a dual capacity like the clerks in a mercantile store, this problem is difficult and this item of cost may not be segregated. Insurance and taxes are allocated to storage costs on the basis of the average inventory carried. Interest will be allocated in the same manner. Most accountants would not include the interest charge. However, many department stores charge the departments with interest on investment in inventories, and manufacturing firms with sales branches usually charge the branches in a similar manner.

Sales Office Expense

Sales operations must always be subject to some executive supervision and this supervision results in expense. The nature of this supervision and the amount of its cost depends on the size and organization of each firm. In most firms there is a sales manager who is the executive head of the sales department. Frequently he is assisted by both line and staff executives. In some cases there are district sales offices each under the control of a district manager, who is subordinate to the sales manager. Each district manager may have line and staff assistants. If a company has a sufficient volume of foreign sales, it may have an "export" sales office under a manager and appropriate assistants. In a company distributing its product through branches there is a manager and assistants at each branch.

As the sales organization grows care must be taken to avoid the incurrence of unnecessary expense. It is natural for each subordinate office to desire to enlarge its activities as much as possible. This tendency is likely to lead to duplication of work. Many activities can be performed better by the central sales office for the benefit of all the subordinate offices than they can be performed by each office for itself. Duplication of work often exists in branch and district offices because it has never been brought to the attention of the responsible executives. The preparation of estimates of sales expense is useful in preventing unnecessary expense in the sales organization. These estimates serve (1) to call the attention of all the executives of the company to the expenses of each unit and to require them to consider these expenses *before* they are incurred: and (2) to provide comparisons between the expenses of different units. If the estimate of selling expenses of the Chicago branch calls for expenditures which are 5 per cent of estimated sales and the estimate of the New York branch calls for expenditures which are 10 per cent of estimated sales, the sales executives and budget committee will ask for an explanation. Sales executives are sometimes given a percentage of gross sales or a percentage of profits as compensation for services. The latter method is preferable when it is practicable, for it causes the executives to think in terms of profits instead of volume.

Salesmen's Salaries and Expenses

It is usually not difficult to determine the items which should be included under this heading. Neither is it difficult to decide the proper method of recording and reporting them. The chief problem is controlling their amount for they have a tendency to become unduly large unless an effective check is exercised. The difficulty of this problem is increased by the lack of adequate standards by which to judge the efficiency or the cost of salesmen's efforts.

Sales executives have given much thought during recent years to the method of compensating salesmen. If they are paid definite salaries it is difficult to judge the equitableness of the amount paid. It is also difficult to secure their best efforts. In an attempt to decrease these difficulties salesmen are sometimes paid in whole or in part on a commission basis. Some sales executives think that a salary plus a commission is the most desirable method. They contend that the work of a salesman cannot be judged entirely by the sales which are directly attributable to him. He may have an advertising value to the business which is not adequately measured by the sales orders he secures. A salary not directly dependent on the volume of sales remunerates him for his work toward building up the good-will of the firm. His commission based on the volume of sales or profits rewards him for efficiency in securing sales orders. Some firms pay a commission only on the amount of sales in excess of a minimum or normal amount. The method of remunerating salesmen is primarily a problem of the sales department but the methods employed are of interest to us as illustrations of operating standards. The method adopted will also affect the sales records.

The control of salesmen's expenses is often more difficult than the control of their salaries. The salaries are either fixed amounts or are based on the volume of sales or profits. The expenses are usually an indefinite amount and there are no adequate standards by which to judge them. To eliminate this indefiniteness some firms have worked out standard per diem allowances, varying these according to territories and size of cities. The salesman is given this allowance regardless of the amount of his expenses. It is expected that he will make a profit in some cases and incur losses in others but that the allowance will be sufficient to pay the normal expenses of the typical salesmen. This method eliminates the trouble and expense of constantly checking up salesmen's expenses and it greatly facilitates expense planning. Its success depends to a considerable degree upon the accuracy of the allowances as estimates of normal expenses.

Where it is not practicable to establish standard per diem allowances a firm should instruct salesmen concerning the items to be included in their expense accounts and require regular reports, which should be subjected to careful scrutiny. Over a period of years it should be possible to work out standard *ratios of* expense to sales in different territories and these can be used in judging the reports of salesmen.

Packing and Shipping Expenses

The cost of packing and shipping merchandise depends upon the nature of the product sold and to a considerable degree upon whether a firm is doing a retail, wholesale, or manufacturing business. In a retail business the merchandise is wrapped by the salesmen or by employees located in the department for this purpose. It may be delivered to the customer by the sales clerk at the time of sale or it may be delivered by the delivery service maintained for this purpose. It is usually impracticable to segregate the cost of any of these operations except those of the delivery department. The cost of the remainder is included in the selling expense of the department making the sale.

In a wholesale or manufacturing business there is usually a shipping department responsible for the packing of merchandise and its delivery to the transportation company. In department stores, mail order houses, and wholesale firms, the shipping department is often under the jurisdiction of an executive termed "operating manager." This executive has under his control numerous other activities of a miscellaneous nature which do not fall naturally under the control of the sales, purchasing, financial, and controller's departments. In a manufacturing firm the shipping department is often under the production manager. Because of these methods of organization it is sometimes difficult to segregate packing and shipping expenses. Whenever they are of any considerable amount, however, they should be segregated for they constitute a cost of performing the selling process and should preferably be shown as a selling expense.

In some cases it is necessary to place goods in wrappers or containers at the time they are manufactured in order to preserve them in a condition for sale. Examples of such cases are the jars holding fruit, the boxes containing cigars, the paper wrappers on chocolate bars, etc. These containers or wrappers are an integral part of manufacturing costs and should be treated as a charge to cost of goods manufactured instead of a charge to selling expense. Sometimes the container is placed on the product when manufactured but is so designed that it facilitates its sale. For example, some of the products sold to drug-stores, such as "life-savers" are packed in boxes so designed that they can be converted into a display case by the druggist. The container may also contain advertising matter which facilitates the sale of the product. In such cases some part of the cost of the container may properly be chargeable to selling expense. In many cases of course the value of this allocation may not equal the cost.

In some cases the same employees are used in the unpacking of goods when received and in packing them for shipment after they are sold. In such cases the expenses of both operations are usually charged to one account and allocated between cost of purchases and selling expense at the end of the fiscal period. Frequently the same transportation equipment is used to transport incoming and outgoing goods. In such cases the total expense is usually charged to a drayage account and later allocated on some equitable basis, such as the ratio of cost of purchases to cost of goods sold. In some cases the tonnage transported to and from the station may be available and can be used as the basis of allocation.

In a few companies freight is paid on all goods shipped in which case we have the item of "freight out." It is sometimes argued that freight out should be deducted from gross sales since "freight in" is added to purchases in arriving at the procurement cost of merchandise. If the transportation charges are paid on all, or the major part of the goods sold, this method is satisfactory. It is fair to assume that this cost was considered in setting the selling price and sufficient added to provide for it. In most cases, however, the seller pays transportation charges only in exceptional cases to obtain special orders. It seems more proper as a general rule, therefore, to treat freight out as a selling expense. The payment of freight out is a concession granted by the sales department when it thinks it is necessary to do so to meet competition or to secure a special order. If the cost of freight out is shown as a selling expense the sales department is less likely to be too lenient in granting this concession. Moreover, the comparison of selling expense with sales, period by period, will show more exact results.

A geographical analysis of packing and shipping expenses is often useful. If a firm sells at uniform prices and pays freight the value of this analysis is apparent. But even though freight out is not paid the analysis may be useful in showing the variations in packing cost on goods sent into different territories. For example, goods for export or for water transportation in domestic trade must be packed differently from those subject to short hauls by rails. Goods going into different climates will often need to be packed differently An analysis of packing expense on a territorial basis will sometimes show that some goods are being sold at a very small profit, or even at a loss, because of the additional expenses incurred in their preparation for shipment. This is particularly likely to be true where a manufacturer of bulky articles has an international market.

Whenever possible, sales should be made f.o.b. the place of manufacture. If is the custom of the trade that freight be paid by the vendor, a business may find it profitable to establish branch depots or warehouses to which goods are shipped and then distributed. Many national manufacturers have such warehouses. Some department stores in large cities establish warehouses in different parts of the city from which they deliver goods to customers. A careful territorial analysis of sales should precede the location of such warehouses.

The loss resulting from breakage or damage occurring in the process of shipping is an item of considerable importance in some cases. If there is a regular, unavoidable breakage it can properly be treated as selling expense. If there is a breakage in one line which is not common to all lines handled it is better to raise the sales price of this commodity sufficiently to cover this breakage and not treat it as a charge against all goods sold.

Relation of Advertising to Selling Expense

There has long been an argument among executives in the marketing field concerning the relation of advertising and selling. This argument has related principally to the proper relation between the advertising manager and the sales manager. Some contend that the advertising manager should be the executive head of an independent department while others insist that he should be subordinate to the sales manager. Although the author is inclined to the latter view, we are not primarily interested in this argument here. Regardless of the organization by which advertising is carried on, the advertising program must be considered as a part of the sales program and advertising expense must be considered as a part of selling expense.

The purpose of the advertising and of the sales forces is the same—to secure the maximum of profitable sales with a minimum of cost. There are services in the marketing of a product which typically can be performed more effectively by advertising than by the sales force and the opposite is equally true. The advertising should be planned with reference to the specific work it should perform in relation to the other sales work of the company. Consequently, advertising expense can be considered rationally only in relation to the other items of selling expense.

In considering the relation of advertising cost to selling expenses the purpose of the advertising must be considered carefully. It is not always the object of advertising to increase current sales or even to increase current profits. A company may incur advertising to maintain its present volume of sales during a period of bitter competition. In such cases the cost of the advertising may be met out of profits. The company may desire to maintain its position in the trade even though less profits are to be secured at the present time. The lessened profits at present may be more than compensated for by the increased profits in the future. A company may incur advertising to ward off hostile public opinion and to prevent undesirable legislation. Public utilities have done considerable advertising of this nature during past years. More recently some of the packing companies have followed this practice. Advertising of this nature may well be met out of profits because it is thought that it will prevent lessened profits in the future. Again, a firm may incur expenditures for advertising which will lessen current profits but build up good-will which will result in larger future profits.

It is sometimes argued that advertising expenditures incurred for the benefit of the future should not be treated as a current expense but carried as a deferred charge to expense or charged to good-will. There are cases where advertising costs can properly be treated as deferred charges if there is reasonable assurance that they will benefit the future and they are written off within the time during which direct benefit is received from them. This practice is readily susceptible of abuse, however, and when it is permitted it must be subject to close scrutiny. It is very easy for executives to be overoptimistic of the results of advertising. It is doubtful if it is ever conservative practice to charge advertising costs to good-will. No doubt good-will is created by advertising but to attempt to estimate the permanent value of such good-will to the business is such a difficult problem and to countenance the practice of doing this opens up so many possibilities of abuse that the accountant cannot but frown upon such a plan.

Advertising expenditures should be analyzed by mediums and when possible by purposes. Advertising may be carried on by various means such as (1) daily newspapers, (2) Sunday newspapers, (3) periodicals, (4) circulars, (5) outdoor posters, etc. In preparing estimates of advertising expense the amount to be spent by each method should be shown and the purpose to be accomplished in each case should be explained. Frequent comparisons should be made between expenditures and results when this is possible. In many cases the results cannot be ascertained definitely.

Method of Estimating Selling Expense

Expense standards are one of the most useful devices a manager can have. If he knows the current practice in various fields of expenditure he has a sort of norm against which to measure his own performances and with which to check his own figures in the preparation of budgets. Such standards are needed in controlling the operations of all departments, but are particularly needed by the sales manager because of the nature of sales expense and its indefinite relation to results.

Unfortunately not much has been done toward developing standard rates for selling expenses. Some few agencies, like the Bureau of Business Research of Harvard University, have gathered data showing the prevailing rates in certain lines of industry. These statistics are useful in enabling the executive to see how his business compares with others in the matter of selling cost. Some trade associations have gathered data concerning the expenses of their members and made them available for the use of other members. Many firms hesitate to give data concerning expenses and costs to competitors. This attitude is changing to a considerable degree and we can expect that more and more there will be available useful data of this nature.

Even though data are obtainable showing the selling expenses of other firms there is no assurance that their rates are those most desirable. Each firm must of necessity develop its own rates and determine the standards applicable to its conditions. If periodical estimates based on scientific research are carefully made and these estimates are controlled by accurate reports, a firm will gradually develop useful standards for making plans and judging results.

In preparing the estimate of selling expense it is necessary to consider each class of expense separately. If the sales office expense has been satisfactory in the past the amount shown by the past records may be used as a basis for the current estimate. Each item of expense should be considered separately. Consideration must be given to salaries of sales manager and his staff, salaries of clerical assistants, stenographers, cost of supplies, etc. In case of district or branch offices it will be necessary to make a separate estimate for each item of expense to be incurred in these offices. It should be evident that in no case should the sales office expense be estimated on a percentage basis. As sales increase the "overhead" expenses should decrease. If the sales office expenses are 3 per cent of sales when the yearly sales are $100,000, they should be expected to be something less than 3 per cent when sales become $500,000. The only way in which the effect of volume of sales on sales expense can be accurately estimated is by considering the effect of changes in volume on each separate item of expense.

If salesmen are paid a commission they usually pay their own expenses. It is easy, therefore, to estimate the cost of salesmen's expenses and salaries in such cases. The rate of commission is applied to the estimate of sales and the result is the estimate of salesmen's salaries and expenses. If the salesmen are paid a salary and the company pays their expenses, it is necessary to consider each salesman individually. After a list of all salesmen is made there will be placed after the name of each his present salary and the normal amount of his expenses. This list will be gone over by the sales manager and his assistants. Where advances of salesmen's salaries are contemplated these will be shown. Each salesman's expenses will be examined and revisions made where it is thought that conditions warrant. Gradually standard expense rates should be developed for each territory and the salesmen's expenses based on these standards. If the rates are fairly determined each salesman can be required to limit his expenses so that they will not exceed the standard.

If possible, standards showing the cost per unit for packing and shipping should be developed. If this is not feasible because of the variety of units sold it is then necessary to develop a standard rate expressed in terms of a percentage of sales. In either case it should be kept in mind that as the volume of sales increases the ratio of packing and shipping expense should decrease. This may not be true in some cases but under normal conditions such a result is to be expected because there are items of overhead which will not increase in proportion to volume of goods handled. After standard rates for packing and shipping expense are developed it is only necessary to apply these rates to sales volume as shown by the sales estimate to obtain the amount of the estimated packing and shipping expense.

During recent years both advertising experts and business executives have given considerable attention to the proper method of calculating advertising expense.

The following methods are those in most current use:

1. Base the advertising expense of the current period on the expense of the previous period, adding or subtracting a certain percentage depending on the opinion of the executives concerning the success of the advertising program of the preceding period. The general manager may say to the advertising manager, "Last year we spent $110,000 for advertising expenses; this year you may spend 5 per cent more." Such a budget refers the advertising manager to the expense accounts of the preceding year for his working program.

2. Base the advertising expense of the current period on the estimated sales of the current period by making the advertising appropriation a fixed percentage of estimated sales. For example, the general manager may say to the advertising manager, "Last year we spent 5 per cent of sales for advertising expense. Here is our sales expectancy for this year. We expect you to secure the sales at an advertising cost of 5 per cent or less." This method is more scientific than that suggested in 1, for it requires the advertising manager to connect cause with effect, advertising expense with sales to be secured. It should be apparent that the advertising expense should not be based on past sales. The advertising of the current period can have no effect on or no relation to the sales of past periods. It is to make possible the attainment of the current sales program that the advertising program is intended, and the amount to be expended under the advertising appropriation can only be determined properly by considering the current sales program.

3. Base the advertising expense of the current period on the estimated sales of the current period by allowing for advertising a fixed amount for each unit of estimated sales. For example, it may be agreed that so many cents will be spent for advertising for each crate, ton, dozen, or pound of estimated sales.

There is a difference of opinion concerning the merits of these methods. No definite rule can be laid down to govern the policy to be followed by all firms. In the opinion of the author the first method is the one least to be desired. It is apt to result in careless planning of advertising cost since it is so very easy to add or subtract a certain percentage to past expenses and not to consider the question further. It is also likely to result in basing present expenses on past expenses without giving proper consideration to the contemplated changes in the sales program. At least it does not compel a consideration of present plans. The ideal methods of administrative control are those which compel co-ordination and at the same time promote progress.

To base the advertising appropriation on a percentage of the volume of sales tends to simplicity and, in a business where the fluctuations in sales volume are not great, may give satisfactory results. This condition is more likely to prevail in a business handling a staple and well-established line than in a business handling specialties. In a business having many and varied lines it may be the only feasible method since it may be impractical to calculate the unit cost of advertising for each item of goods sold. This method has the disadvantage of causing advertising expenses to fluctuate unduly in some cases due to the fluctuations in the price of purchases of materials, supplies, and labor with the consequent fluctuating of the selling price. In a period of depression as many units of commodity may be sold as before the depression but at a price which will greatly decrease the total sales in terms of dollars and cents. In this case if the advertising appropriation is based on the sales volume expressed in financial terms, it will be greatly decreased, whereas it may be desirable to keep up the advertising campaign in order to maintain the sales volume in spite of the adverse conditions. There is something to be said for the possibility that if the sales price of the commodities sold has decreased, the cost of advertising will decrease also.

If advertising is calculated as so much per unit of product sold it tends to concentrate attention on the purpose for which the advertising is incurred and incidentally to call attention to the unit cost and unit profit realized on the articles sold. This method is also likely to cause the advertising appropriation to fluctuate less, since the units sold are likely to vary less than the returns from sales. There is some argument for having the advertising expenses fluctuate as the sales fluctuate. At least there are occasions when this is true. There are also other occasions where the advertising expenses should fluctuate in reverse order to the fluctuations in sales. A financially strong enterprise may increase its advertising during a period of depression in order to reduce the decrease in sales to a minimum and to establish itself in the market ready to take advantage of the contemplated period of prosperity. A firm may also increase its advertising in order to keep up sales volume so that losses may be prevented from idle production capacity.

Regardless of whether the unit costs or the percentage method is used revisions will have to be made in case of changing conditions which affect the general plans made when the advertising appropriation is adopted.

Preparation of Selling Expense Budget

An estimate of sales office expense will be prepared by the staff of the executive head of each sales office. If there is but one sales office the estimate of its expenses will be prepared by the staff of the sales manager. If there are branch or division offices the manager and assistants of each office will prepare an estimate for that office and submit it to the sales manager for his consideration. The estimate of salesmen's expenses should preferably originate with the salesmen. Each salesman should be requested to prepare an estimate of his expenses and submit this to his immediate superior. These estimates should be forwarded by each sales executive with his recommendations to his immediate superior. The estimate of packing and shipping expense should be prepared by the head of the shipping department and forwarded to his immediate superior.

The estimate of advertising expense should be prepared by the advertising manager. He should have before him the contemplated sales plans and should be familiar with the plans and policies of the business as a whole. If the advertising manager is subordinate to the sales manager he will submit his estimate to the latter for approval. In any case he should work in cooperation with the sales manager in the preparation of the advertising program.

The sales manager will make such revisions as he thinks necessary in the estimates of his subordinates and forward them to the executive in charge of budget procedure. He will accompany these with any recommendations he desires to offer. The executive in charge of budget procedure will forward these to the budget committee. After they are passed by this committee they will be sent to the board of directors. After approval by the board they will be returned through the executive in charge of budget procedure and the sales manager to the executives responsible for their execution.

In some firms the controller prepares all expense estimates including those for sales expense. The controller may very properly prescribe the form of the estimates and the reports to be used in their control, but he should not be responsible for their preparation. This is the task of those who are responsible for their execution. As a member of the budget committee the controller will have an opportunity to pass on all estimates submitted and should be able to offer constructive criticisms of them. It may be beneficial in some cases to have the expense estimates referred to the controller for review before they are considered by the budget committee.

The estimate of selling expense may be made in the form shown by Chart X. This is a simple form of estimate show-

CHART X

SELLING EXPENSE BUDGET

MONTH________ SEASON________

Items	Appropriation Last Period	Percentage of Sales of Last Period	Original Appropriation for This Period	Percentage of Original Sales Expectancies	Additions	Deductions	Present Appropriation	Percentage of Present Sales Expectancies	Comments

ing in condensed form all selling expenses. Separate estimates may be prepared for salaries, sales office expenses, advertising, etc. An illustration of a more detailed estimate is shown by Chart XI.

Illustration of the Preparation of Selling Expense Estimate

A concrete illustration of the preparation of the selling expense estimate is provided by the following:

On an appointed date toward the end of the fiscal year each district manager is required to submit an estimate of his district sales, by months, for the ensuing year, together with a budget of expenses. The sales expense of the company is distributed among 25 accounts and the budget calls for a distribution to accounts by months. All changes in the district pay-roll proposed for the ensuing year must be shown on the budget with an indication of the date on which each change is to become effective. Accompanying this district budget is a memorandum stating what the proposed increase in pay-roll will be and why any increase to be made is considered due, or if additions to the district force are desired, why they are necessary, and explaining any other items about which he may consider it likely that a question will be raised. This budget, as the district forwards it to headquarters, features the selling cost per unit of sales. It should be explained that it is possible in this particular business to arrive at a common denominator or unit of product to the terms of which all sales may be reduced for control purposes.

Upon receipt of the district budgets at the home office they are first of all reviewed by the sales manager, who may call for a written explanation of some of the items. In most cases this can be satisfactorily done by mail but occasionally a conference is necessary.

With this evidence from each district all in, the headquarters sales office makes such changes in the sales estimate and budget of any district as its findings warrant. A similar estimate meanwhile has been prepared for the expenses of the headquarters sales office. The estimated sales in each district, the total expense of each district, the cost of selling per sales unit in each district, totals of the first two items, and the average of the third are then laid in a brief report before the management.

This report shows what the sales department feels the demand will be after careful study, and how the proposed cost of distribution and service compares with that of previous years, and in various parts of the country. The sales manager is invited to explain any of the items of this report which

This Year

Location ________
Floor space in sq. ft. ________
Maximum capacity number of sales per week per employee ________
Maximum number of clerks to above space ____
Minimum number of clerks to above space ____

SALARY EXPENSE FORECAST

(The Man with the Plan gets there)

Salaries of ____________ Dept.

____________ 19____

Standard Average Percentage

Location ________
Floor space in sq. ft. ________
Maximum capacity number of sales per week per employee ________
Maximum number of clerks to above space ____
Minimum number of clerks to above space ____

Week		Last Year Actual					THIS YEAR Planned					Actual					Over or Under Planned Figures					Approved Increases				
		No. of Sales		No. of Empl.	Salaries		No. of Sales		No. of Empl.	Salaries		No of Sales		No. of Empl.	Salaries		No. of Sales		No. of Empl.	Salaries		No. of Sales		No. of Empl.	Salaries	
No.	Ending	Total	Per Empl.		Am't	% to Sales	Total	Per Empl.		Am't	% to Sales	Total	Per Empl.		Am't	% to. Sales	Total	Per Empl.		Am't	% to Sales	Total	Per Empl.		Am't	% to Sales
0																										
1																										
Total	to date																									
2																										
Total	to date																									
3																										
Tot[illegible]																										
13																										
Total	to date																									
0																										
Total 3	Mo's																									

APPROVED ____________ Treasurer

APPROVED ____________ Departmental Merchant or Head of Non-Selling Dept

APPROVED ____________ General Supervisor

APPROVED ____________ Division Supt.

[1] Taken from David, *Retail Store Management Problems*, A. W. Shaw Co., 1922.

either the management or he may desire to discuss. It will be seen from the description of the way in which this material is worked up that he should be familiar with the factors contributing to every item on the schedule.

When sales estimate and budget are finally approved, each manager receives a copy of the accepted figures for his district, and the year begins.

All sales made by the company are credited to some district, whether the order goes through the district office or comes to headquarters.

Every item on each expense account forwarded to the general office for approval and payment is assigned by the district manager to one of 25 control accounts and no change is made in his distribution without his consent.[1]

Control of Selling Expense Budget

After the selling expense budget is approved by the board of directors a copy is given the controller, who is responsible for

CHART XII

REPORT ON SELLING EXPENSE APPROPRIATION

1	2	3	4	5	6	7	8	9	10	11
Items	Original Appropriation	Additions	Deductions	Final Appropriation	Cash Disbursements Against Each Appropriation	Credit Disbursements Accounts Payable	Undisbursed Balance	Contracts Outstanding for Salaries and Wages	Formal Contracts for Printing, etc., Outstanding	Balances Available for Future Contracts or Transfer

seeing that payments in excess of the budget are not authorized. If the sales department finds it necessary to exceed the budget they must secure an additional appropriation. The board of directors usually authorizes the president to grant reasonable increases in cases of emergency. Otherwise increases must be approved by the board.

[1] F. R. Blair, "Business Forecasting in Edison Industries," published in *Administration* (January, 1923), pp. 2–4, by Ronald Press Company, New York.

Monthly reports should be made showing the condition of the advertising appropriation. A condensed report for the use of the budget committee and board of directors is shown in Chart XII. The sales manager and his assistants will need more detailed reports. For example, a report in the form of Chart XIII is useful to the advertising manager.

Relation of Selling Expense to Policies

All budgets should be regarded as statements of policies, and this is especially true of the selling-expense budget. It should present to the budget committee and board of directors in a very concrete and tangible way the fundamental policies for which the sales and advertising departments stand. To facilitate its study from this point of view the budget should show expenditures classified in terms of objectives rather than in terms of methods of expenditures. For example, the advertising budget should show expenditures classified by policies and products rather than in terms of mediums. Of course, a classification by mediums may be shown as a secondary classification. A classification by policies not only assists the executives in passing on the propriety of the budget, but it also facilitates the control of expenditures under the budget after it has been approved.

For example if it is the policy of a firm to build up good will by means of "institutional" advertising the amount appropriated for this purpose should be set out separately on the advertising budget. It is true that the different products sold by the company will benefit from this advertising, but this relationship is so indefinite that it cannot be recognized for control purposes. The remainder of the advertising budget will presumably be for product advertising and the amount to be spent on each product should be clearly shown on the budget. The budget should be supported by details showing the expected results of each class of expenditures. This makes possible an effective check at the end of the period.

CHART XIII

ADVERTISING APPROPRIATION REPORT*

(Monthly-Cumulative)

MONTH________ SEASON________

DISTRIBUTION	THIS MONTH					SEASON TO DATE			
	Gross Expenditure	Credits	Net Expenditure	Budget	"Over" or "Under"	Net Expenditure	Budget	"Over" or "Under"	Balance for Season
*Magazine									
*Farm Paper									
*Newspaper									
*Trade Paper									
Miscellaneous									
Total Space									
Periodical Newspaper Miscellaneous Total Art Work									
Periodical Newspaper Miscellaneous Total Engraving									

ADVERTISING APPROPRIATION REPORT—*Continued*

Distribution	This Month					Season to Date			
	Gross Expenditure	Credits	Net Expenditure	Budget	"Over" or "Under"	Net Expenditure	Budget	"Over" or "Under"	Balance for Season
Catalogues									
Folders									
Total Literature									
Dealer Cuts									
Photographing									
Dealer Helps									
Miscellaneous Printing									
Delivery Charges									
Miscellaneous									
Total Sundry									
*Space									
Literature									
Miscellaneous									
Total Export									
Grand Total									

* *Administration*, July 1921.

QUESTIONS FOR CLASS DISCUSSION

1. Why have standards for the judging of selling expense been slower in developing than standards for judging other kinds of expenditures?
2. The X store is owned and operated by a partnership composed of the three equal partners A, B, and C. A looks after the purchasing of merchandise, B directs the sales, and C supervises the financial operations and acts as general manager. The partners make no charge for their services and no entry is made in the records for salaries. Do you approve of this method? If salaries are recorded how should they be treated?
3. The X Department store charges each department of the store rent for the space it occupies. Do you approve of this method? If rent is to be charged on what basis should it be charged to each department?
4. The same store charges each department interest for "capital invested" in the department. Do you approve? If so, on what "capital" will it be charged?
5. The Kirchley Department Store maintains an alteration department where wearing apparel is changed to meet customers' wishes. The executives of the store do not agree as to how the cost of this department should be treated. The following methods are suggested:
   a) That it be treated as a selling expense and distributed to the departments making use of the alteration department on the basis of the amount of service which each receives.
   b) That the alterations are the result of improper buying and therefore should be added to the purchase cost of the goods altered.
   c) That the amount of the alteration cost on each class of goods be estimated and sufficient added to the mark-up of these goods to provide for this cost.
   d) That alterations be charged to customers.
   What is your opinion of these methods?
6. The M. Department store offers a liberal discount on sales to employees. The principal purchases made are of wearing apparel, the largest being in the ladies' ready-to-wear department. Employees from all departments of the store make these purchases. In the past these discounts have been treated as deductions from the sales of department making the sale. The head of the ladies' ready-to-wear department contends that this method is unfair and that these should be treated as "labor cost" of the department in which the employee works. What is your opinion?

7. "Conservative firms base their plans for the future on their accomplishments during the past. It is proper, therefore, to use the advertising appropriation of the past year as the basis for the appropriation for the current year." What about it?
8. "If the sales price of the commodities sold decreases the cost of advertising should decrease also." Discuss.
9. "There is some argument for having the advertising expenses fluctuate as the sales fluctuate. There are also occasions where the advertising may fluctuate in reverse order to the fluctuations in sales." Give instances where each of these statements may be true.
10. "There is reason to believe that advertising managers have placed great emphasis on the basis of determining the amount of the advertising appropriation because it has been difficult to get appropriations approved and consequently it was desirable to get a definite basis established which would give them the maximum amount under all circumstances." Explain.
11. Explain and illustrate in what ways standards and records may be used.
    a) In judging the results of contemplated advertising.
    b) In judging the results of past advertising.
12. "Although the advertising department should be given freedom of judgment, this freedom should be manifested in the main before instead of after the advertising appropriation is approved." Explain.
13. In planning their advertising some stores budget the amount that can be spent by a department in any one month, but the buyer and the advertising manager are allowed to spend the money in any way they see fit. What is your opinion of this procedure?
14. Some stores require that all advertising copy must be approved by the controller before it is printed. What is the purpose of this? What method will the controller use to judge the advisability of approving the advertising?
15. "The advertising budget is made out by the controller and approved by the merchandise manager; any changes must be approved by the controller. These figures are then sent to the advertising department, which must govern its expenditures accordingly." Do you think this is a desirable procedure?
16. The X store prepares its advertising budget for only one month in advance. The controller explains that this method is desirable that the advertising budget may be adjusted to the special conditions existing at the time the advertising is placed. The advertising manager contends that the budget should be made for six months in advance so

that he may be able to plan his advertising program. What about it? Are there other considerations than those mentioned by the controller and the advertising manager?

17. "When a buyer wants to run a quarter-page or half-page in the daily papers, he must get the merchandise manager's O.K. The latter is governed in his decision by such circumstances as previous consumption of space by the applicant and the advertising requirements of other departments under his jurisdiction." Do you regard this a desirable procedure? Does the merchandise manager consider all the factors he should in making his decision?
18. "A firm should obtain information which will enable it to judge whether the territory or the salesman is responsible for the sales orders secured." Discuss.
19. The sales manager of the X Company says it is the function of the salesmen to make sales and not to study reports and consequently he does not desire any reports sent to salesmen. Discuss.
20. In what way does the procedure involved in the preparation and enforcement of the selling expense budget of a department store differ from the procedure by which these ends are attained in a manufacturing business.

EXERCISE NO. 29

The ledger of the Chapman Sales Company discloses the following trial balance as at the close of business, December 31, 1923:

Delivery Equipment	$ 10,000.00	
Warehouse Equipment	28,400.00	
Office Furniture	31,610.00	
Accounts Receivable	70,463.00	
Customers' Notes Receivable	35,128.00	
Cash	12,240.00	
Phonographs, Inventory, Jan. 1, 1923	24,491.00	
Pianos, Inventory, Jan. 1, 1923	28,905.00	
Accounts Payable		$ 43,462.00
Notes Payable		15,000.00
Capital Stock		150,000.00
Undivided Profits		12,858.00
Sales: Phonographs Cash Sales		105,622.00
Phonographs Credit Sales		74,818.00
Piano Cash Sales		80,775.00
Piano Credit Sales		121,004.00
Forward	$241,237.00	$603,539.00

Brought forward	$341,237.00	$603,539.00
Purchases: Phonographs Purchases	101,644.00	
Piano Purchases	88,078.00	
Expenses of Retail Sales Office	15,504.00	
Expenses of General Sales Office	12,981.00	
Expenses of Printing Catalogues	22,304.00	
Expenses of Mailing Room	18,616.00	
Newspaper Advertising	12,245.00	
Warehouse Expense	19,487.00	
Delivery Expense	2,000.00	
Phonographs Returned by Customers	12,504.00	
In Freight	3,499.00	
Pianos Returned by Customers	18,226.00	
Customers' Notes Protested	2,002.00	
Bad Debts	7,500.00	
General Office Expense	24,727.00	
Cash Discount on Sales	985.00	
	$603,539.00	$603,539.00

The inventory of December 31, 1923, shows phonographs on hand, $34,476, and pianos on hand, $27,930, after allowing for depreciation on stock-worn goods. Depreciation is estimated on warehouse and delivery equipment and on office furniture at 10 per cent per annum. A reserve of 1 per cent of gross sales is set up for bad debts.

The company sells phonographs and pianos to retailers at a city sales office, and also sells direct by mail from a general office. Sales are made to retailers on 30 days' terms with discount allowed for payment within ten days, and to mail order customers on cash and on instalment terms. No traveling salesmen are employed.

The president of the company is general manager and in charge of buying and warehousing. The first vice-president, as sales manager, is responsible for the city salesrooms and for the preparation, printing, and mailing of catalogues. Catalogues are mailed from the mailing room, and the facilities of this department are also used in handling letters to customers. Catalogues are written by the sales manager and his assistants, who also make contracts with printers.

The treasurer of the company is in charge of the general office and is responsible for credits and collections. All accounts are maintained at the general office, and all correspondence with customers is conducted from that office.

Required

The president of the company asks you to prepare for his use the following:

1. A balance sheet as at the close of business December 31, 1923.
2. A statement of income and expense for the year 1923.
3. A report discussing the following:
   a) The organization of the company. Construct chart to show organization you recommend.
   b) The procedure to be followed by the company in preparing and enforcing its sales estimate. Include forms for necessary reports.
   c) The procedure to be followed in preparing and controlling its selling expense budget. Include the necessary forms.

REFERENCES FOR FURTHER STUDY

1. Blair, "Forecasting in the Edison Industries," *Administration*, January, 1923.
2. Parsons, *Office Organization*, chap. xix.
3. McDermid, "Budgeting the Advertising," *Administration*, July, 1921.

CHAPTER XVII

SALES-ORDER PROCEDURE

Need for Proper Procedure

All sales are made in response to either oral or written orders from customers. It is important that these orders be handled in such a manner that customers receive prompt and efficient service. Otherwise the customer's ill will is engendered, and full benefit is not secured from the selling expenses incurred in securing the orders. It is also important that the orders be so handled that the least possible expense will be incurred in the process by which they are filled. In most firms several departments must co-operate in filling sales orders, and if any department performs its task improperly the work of other departments is hindered with the consequent increase in cost. Moreover, other departments than those directly concerned with the satisfaction of the order are interested in the information it contains and this information should be brought to them automatically in the process by which the order is filled. For example, both the statistical and accounting departments desire information concerning orders and sales. The sales orders should be handled so this information will be available with the minimum amount of expense.

To secure these ends it is necessary to establish a standard procedure for handling sales orders from the time they are received until final entry for them is made in the accounting and statistical records. By careful study the minimum operations necessary for the efficient handling of orders can be ascertained, and responsibility for the performance of each of these operations can be established. By this means both delay and duplication can be avoided.

Essentials of a Satisfactory Procedure

The routine of handling sales orders must of necessity vary from firm to firm, owing to variations in organization, methods of sales, and nature of product. The procedure of a retail store where orders are received orally and goods delivered to the customer by the sales clerk is simple indeed. The procedure of a large mail-order house receiving thousands of orders, most of which call for several articles located in a number of departments, is exceedingly complex. Between these two extremes there are many different types of procedures with varying degrees of complexity. Despite these variations the essentials of a satisfactory procedure are quite similar in all cases. The following statement of these essentials is suggestive:

1. *Accuracy; this requires:*

   (1) That goods called for be supplied
   (2) That responsibility for every operation on an order be fixed
   (3) That the record of the transaction be clear
   (4) That special instructions of a customer be observed

   It is attained by:

   (1) Legibility of the order
   (2) Few re-writings
   (3) Simple and standard forms
   (4) Necessary rechecking of work

2. *Minimum of time*

   Attained by:

   (1) Proper relationship between departments handling orders
   (2) Routing orders
   (3) Combination of functions by manifolding and other devices
   (4) Elimination of unnecessary checks and unnecessary records
   (5) Proper control of stock to prevent delays due to shortage
   (6) Follow-up of orders

3. *Minimum of cost*

   Attained by:

   (1) Simplicity of system
   (2) Elimination of errors which cause expensive adjustments
   (3) Factory methods of operation

4. *Right relationship with customers*
   Attained by:
   (1) Accuracy of system
   (2) Acknowledgment of his order and its progress
   (3) Methods easy to understand where he comes in contact with them
   (4) Proper attention to all complaints[1]

Illustration of Sales-Order Procedure

The variations in the procedures of different types of firms are so significant that it is impossible to describe a definite procedure except in terms of the specific situation in which it is to be used. We think, therefore, that the best way to give the student a comprehensive picture of the possibilities in working out a procedure is to explain the procedures of four firms which represent typical situations. The following are taken for illustrations: (1) publishing company, (2) furniture store, (3) manufacturing firm, and (4) investment banking firm.

Considerable space is given to these illustrations not only because they are significant in themselves but also because they illustrate so well the nature of standard procedures. Incidentally they give considerable information on organization and the operations of the various departments which are affected by the sales-order procedure.

Sales-Order Procedure for a Publishing Company

A company publishing texts for use in secondary schools, with sales of $1,000,000 a year, has the following sales-order procedure:

1. All incoming mail is inspected by the general manager who uses this means to keep in close touch with all the operations of the business. In his absence the sales manager performs this task.

2. All orders are sent to the credit manager for approval. Orders of interest to the sales manager are called to his attention by the general manager before they are passed to the credit

[1] Schulze, *Office Administration.*

manager. The credit manager maintains a card file showing the previous purchases of each customer together with his credit rating. He refers to this to ascertain the credit rating of the customer and also to see if the customer has made errors in ordering. By knowing what the customer has been using, the credit manager can judge what he should reorder. Obvious errors are corrected while probable errors are called to the customer's attention before the goods are shipped.

3. After the order is approved by the credit manager it is sent to the billing department where four copies of the invoice are made. These copies are as follows:

a) The original or white copy which goes to the customer.

b) The blue copy which goes to the accounting department and serves as a posting medium.

c) The pink copy which goes to the shipping-room and serves as instructions to ship goods.

d) The yellow copy which goes to the salesman of the territory where the customer is located.

There is also prepared at the same time an address slip which is attached to the pink copy before it is sent to the shipping-room.

4. The original copy, the posting copy, and the salesman's copy are held by the billing section until the pink copy is returned by the shipping department. All shipments are made on the day the order is received so there is little delay involved.

5. The shipping department checks on the pink copy the goods to be shipped after they have been assembled for packing. It also enters on the pink slip the postage or freight if this is to be paid by the company. This copy is then returned to the billing department.

6. The billing department makes on the other copies any changes indicated by the pink copy. The invoice is then mailed to the customer, the blue copy sent to accounting department, the yellow copy to salesmen, and the pink copy and the original order are filed with the customer's correspondence.

Sales-Order Procedure of a Furniture Company

The order procedure of a furniture store with both a retail and a wholesale department is as follows:

1. All orders received are copied on the form shown in Chart XIV. The firm makes few if any over-the-counter deliveries.

Three copies of the order are made: (*a*) order copy, (*b*) assembly copy, (*c*) record copy.

2. All three copies are sent to the credit department where the credit of the customer is examined.

3. If the credit department approves the order it sends all the copies to the order desk where they are scheduled as follows:

a) Copy 1 is sent to the merchandise department.

b) Copy 2 is sent to the assembly clerk.

c) Copy 3 is sent to the service department.

4. The assembly department assembles the merchandise and sends it together with Copy 1 to the assembly clerk.

5. The assembly clerk does the following:

a) Checks Copy 1 against the merchandise.

b) Checks Copy 1 against Copy 2.

c) Sends Copy 1 to billing department.

d) Sends Copy 2 to service department.

6. The billing department uses Elliott Fisher billing machines to make four copies of the invoice which are used as follows:

a) Copy 1 is the customer's invoice and is mailed to him by the mailing department.

b) Copy 2 is a shipping ticket and is the authority of the shipping department to ship goods.

c) Copy 3 is the sales-record copy and is sent to the accounting department.

d) Copy 4 is the file copy. It is pasted to the original order and filed alphabetically according to customer's name. Before filing, this copy is sent to the service department. If bills of lading are necessary they are made out by the billing department at the same time as the invoices.

CHART XIV

ORDER

Source	Fill at	Ship from	Ship by	Terms		Salesman	Order No.	Dept.
Mail	Whol.	Whol.	Freight	Charge	% Cash			
Road			Express		Days Net			
House	Ret.	Ret.	Parcel Post	C. O. D.	Deposit	Dept. Head O. K.	Other Dept Filling	
			Delivery					

Charge To	Date of Order Our Date	Credit Dept
Address	Customer Ord. No.	

Ship To	Special Instructions	
Address		
Route		

Pattern	Size	Quantity	v	v			Price	Exten.	Terms
									Mdse. Dept.
									Assembling Dept.
									Billing Dept.
									1

7. The shipping department assembles the goods in response to the *assembly order* received from the order clerk. It ships these in response to *shipping ticket.* This is Copy 2 of the invoice and is sent to the shipping department by the billing department.

8. The service department prepares a route sheet from the copy of the order received from the order clerk. It receives another copy from the assembly clerk when goods have been delivered by the merchandise department, and it receives the file copy of the invoice from the billing department. By this means it is able at all times to inform the customer the status of his order.

Sales-Order Procedure of a Manufacturing Firm

A manufacturing firm having sales of $15,000,000 a year has the following sales-order procedure:

1. When an order is received by the mailing department it is sent at once to the sales-order "department" (a section of the planning department) where it is numbered and entered in an order register.

2. It is then sent to the sales department for approval. Entry is made in the order register showing the time when it leaves the order department. After the order is approved by the sales department it is returned to the order department. The time of its receipt by the order department is entered in the order register.

3. The order is then sent to the credit department for approval. The time when the order is sent is entered in the order register. After approval by the credit department the order is returned to the order department and appropriate entry is made.

4. The order is then "dressed" by the order department. This is the process by which the order is translated into the technical terms by which the articles it calls for are designated in the records of the company.

5. Four copies of the order are made by the order department. These are sent to the inventory section of the planning department which stamps them as approved if its records show that the articles called for by the order are in stock. If some of the articles are not in stock, the inventory section will mark the orders accordingly. In both cases all the copies of the order are returned to the order section where proper entry is made in the order register both at the time they are sent and at the time when they are returned.

6. If some of the articles are not in stock the order department must decide whether to make a partial shipment or to hold the order until all of the articles are available. In either case the customer is notified.

7. When the order department is ready for the order to be shipped it distributes the four copies of the order as follows: One copy goes to the stores department to instruct it to deliver the goods to the shipping department. One copy goes to the shipping department to notify it that goods are coming from the stores department and to serve as a check on the stores department. One copy is sent to the customer as an acknowledgment of the order and as notice that goods are being shipped. One copy is retained by the order department as a follow up.

8. The stores department sends the goods to the shipping department and returns its copy of the order to the order department which makes proper entry on its follow-up copy.

9. The shipping department checks the goods received from the stores department against its copy of the order and then forwards it to the order department where entry is made on the follow-up copy.

10. The order department sends the "stores" copy of the order to the inventory section where entry is made on the inventory records and the copy of the order filed as a supporting voucher for the entry. The order department sends the "shipping" copy of the order to the billing section of the account-

ing department. It then removes the follow-up copy from the unfilled-order file and places it in the filled-order file.

11. The billing section makes extensions on its copy of the order and then prepares an invoice in quadruplicate. These copies are distributed as follows: The original copy is sent to the customer. One copy is sent to the tabulating department where the sales analysis is prepared and where a condensed report on sales is prepared for the general ledger accounting section in the form of a journal voucher. Two copies are sent to the accounts-receivable section of the accounting department where the customer's account is debited after which one copy is sent to the credit department.

Sales-Order Procedure of Investment Banking Firm

One of the largest investment banking firms in the country has the following procedure for handling its sales orders:

- I. Sales orders are received by correspondents from
  - A. Salesmen
    - 1. Over telephone
    - 2. Via telegrams
    - 3. Through mail
  - B. Sales managers
    - 1. Special sales reported to managers first
    - 2. Trades handled by managers
  - C. Customers
    - 1. Through counter salesman
    - 2. Through mail
- II. Correspondents write or complete sales slips and pass them to stock-cards clerk. The correspondents are responsible for
  - A. Names and addresses of customers
  - B. Prices—except in cases of trades or special transactions when managers are responsible
  - C. Delivery instructions
  - D. Salesmen to be credited

    (If an order is received first by the sales manager, he will start sales slips and pass them to correspondent who will complete the operation.)

III. Correspondents keep copies of telephoned orders, and check these against reports sent in by salesmen. If the original instructions were incorrect or incomplete, the correspondents are responsible for transmitting the corrections to the control clerk.

IV. The trading department will prepare the sales slips for transactions originated by it. The department will be responsible for the following:
  - A. Names and addresses of customers
  - B. Description of securities and prices
  - C. Delivery instructions
    (If a salesman is to receive credit for a transaction, the trading department must pass slips through correspondents to stock-cards clerk. Otherwise they will be sent direct to stock-cards clerk.)

V. The stock-cards clerks
  - A. Date and number slips
  - B. Make proper entry on stock cards
  - C. Complete description of securities showing:
    1. Name
    2. When dated and when due
    3. Interest or dividend date
    4. Original, syndicate, or trading
  - D. Pass completed slips to computer

VI. The computer performs the following:
  - A. Extends the amount of the principal and accrued interest
  - B. Passes slips to fanfolders

VII. The fanfolders prepare eight copies of sales invoice which serve the following purposes:
  - A. Confirmation
  - B. Bill
  - C. Journal and security register copy
  - D. Remittance clerk's copy
  - E. Shipping letter and receipt
  - F. Salesmen's advice of shipment
  - G. Statistical and correspondence file
  - H. Salesmen's copy of confirmation

VIII. The fanfolders will make immediate distribution of the fanfolds as follows:
  - A. No. 1 is placed in tray marked "Sales Managers"
  - B. Nos. 5–8 inclusive are placed in tray marked "Control Clerk"

C. No. 7 is placed in tray marked "Statistical"

D. No. 8 is placed in tray marked "Mailing Department"
(Messengers are responsible for delivery of these copies to the proper clerks.)

IX. The functions of the control clerk are:

A. To maintain an alphabetical file by issues of sales copies Nos. 2–6 inclusive

B. To pass to remittance clerk copies Nos. 3–6 inclusive covering sales confirmed with bills

C. To look through file daily, taking out groups calling for statements and deliveries, starting groups through department, allotting bonds, making necessary entries and keeping necessary records

D. To deliver bonds with proper fanfold copies attached to delivery clerk; to deliver proper copies to cashier of transactions to be forwarded with letters; and to deliver proper copies to remittance clerk on remittances in transit

X. The functions of the remittance clerk are

A. To maintain alphabetical file by issues of copies Nos. 3–6 inclusive on sales originally confirmed with a bill or on which a bill has been sent after confirmation but before delivery

B. To maintain file by customers of copies representing remittances in transit

C. To receive remittances, make proper credit entries, pass copies on "paid but undelivered" sales to control clerk and file numerically copies representing "delivered and paid" transactions

D. To acknowledge receipt of remittance to customers

E. To look through files daily thus keeping work in hand

F. To maintain numerical file of Copy 4 when transactions have been completed

XI. The functions of the delivery clerk are:

A. To make exchanges of collateral for control clerk

B. To make "street" deliveries of bonds sold to brokers or city customers, to bring checks and receipts for bonds to remittance clerk

C. To put up and send out registered mail deliveries, checking bonds with slips and letters; putting bond numbers and dates on No. 5 copies, and sending with each registered package a stamped addressed envelope in which customer will return No. 5 copy as receipt

D. To enter insurance on mail

E. To check registered mail return receipts with registered mail entries and advise cashier if receipts are not received

XII. The functions of the journal clerk are:

A. To write sales journal from No. 3 copies of sales fanfolds received through control clerk

B. To pass No. 3 copies after journal entries are made to security register clerk, who, after making entries in register, will file copies by issues

C. To write general journal from regular journal entries

XIII. Sales transactions are handled as follows:

A. When a sale is confirmed with a bill

1. Fanfold group copies Nos. 3–6, inclusive, passes through control clerk to remittance clerk

2. On receipt of payment, copies Nos. 3 and 4 are marked "Paid"; Nos. 3, 5, and 6 are passed to control clerk; and No. 4 is filed numerically

3. On receipt of Nos. 3, 5, and 6, control clerk (if bond is available)

a) Enters delivery on "Received and Delivered Blotter"

b) Makes collateral exchange if necessary

c) Notes date and bond number on No. 3 and checks blotter to indicate bond has been delivered, and passes No. 3 to journal clerk

d) Passes bond with No. 5 copy attached to delivery clerk for shipment

e) Dates No. 6 copy and sends it to mailing department to go to salesman as advice of delivery to customer

B. When a statement is sent on a definite date before delivery of bond

1. Control clerk takes from file group copies Nos. 2–6, inclusive, covering the sale and passes them to computer

2. Computer extends accrued interest and foots bill on copies Nos. 2, 3, and 4, and passes entire group back to control clerk

3. Control clerk

a) Passes No. 2 copy to cashier who sends it to customer with or without a letter

b) Passess copies Nos. 3–6, inclusive to remittance clerk

c) When remittance is received, delivery is made as outlined under (*a*)

C. When sale is confirmed for immediate delivery, or at a definite date

1. Control clerk will, when delivery is to be made

   a) Enter delivery on "Received and Delivered Blotter," and take steps to get bonds from collateral

   b) Pass fanfold group to computer who will extend accrued interest on copies Nos. 2, 3, and 4 and return group to control clerk

   c) Control clerk will match up bonds with group, put date and bond numbers on No. 3 copy, check delivery on blotter, attach Nos. 2 and 5 to bonds and pass them to delivery clerk, pass No. 3 to journal clerk, No. 4 to remittance clerk and send No. 6 to mailing department. (Deliveries to brokers and to offices will be handled in a similar manner except that in cases of shipments to offices No. 2 copy will be sent by ordinary mail, and No. 6 copy will be destroyed by control clerk.)

XIV. When customer returns No. 5 copy as receipt, it will be filed numerically in place of No. 4 copy which will be filed in correspondence file in place of No. 7.

Numerical file must be checked carefully and often, and form letters sent to customers who have not returned No. 5 receipt copies.

QUESTIONS FOR CLASS DISCUSSION

1. Take the four firms for which sales-order procedures are given in this chapter, and state in each case (*a*) the departments which assist in the filling of a sales order and (*b*) the departments desiring information concerning sales orders.
2. "All incoming mail is inspected by the general manager who uses this means to keep in close touch with all the operations of the business." Do you think this is a desirable plan? In what other way might he obtain similar results?
3. Why should a sales order be referred to the sales department for approval? Why is this not done by the publishing company discussed in this chapter?
4. Why should an order be sent to the order department for registry before it is sent to the sales or credit department for approval?
5. What factors should the order department consider in deciding whether to make partial shipments?
6. Trace each of the copies of the sales invoice prepared by the fanfolders (see p. 372) from the time of its preparation until final disposition.

7. Outline a sales-order procedure for the following: (*a*) department store, (*b*) wholesale grocery company, and (*c*) jobber of school furniture and supplies. You will make necessary assumptions concerning size and organization of company.
8. The X Manufacturing Company is a large firm with a well-developed organization. A new controller has just been appointed. The vice-president in charge of sales tells the controller that customers complain that their orders are not handled satisfactorily. The controller investigates the cause of the complaints and he finds that the following have happened from time to time:
   a) Orders mailed to the company but not acknowledged or filled by it.
   b) Orders acknowledged by company but goods not shipped nor invoices mailed.
   c) Goods shipped but customer not invoiced.
   d) Customer invoiced but goods not shipped.
   e) Goods shipped and customer invoiced twice.
   f) Part of order shipped and customer invoiced for total of order.
   g) Part of order shipped and properly invoiced but the remainder of order neither shipped nor invoiced.

   Give a possible cause for each of these and explain how its recurrence can be prevented or at least minimized.

EXERCISE NO. 30

The Chicago Mercantile Company operates a department store. It has the following sales-order procedure:

Preliminary report.—The buyers send the auditing department a report of their sales according to the sales clerks' records at the end of the day. A report of gross sales by departments is made up from these figures the following morning to give the executives an idea of yesterday's business.

Charge checks.—Charge send checks are received by the auditing department from the delivery and credit office at the same time that charge-taken checks are collected from the cashiers' desks. All checks are sorted according to departments, and given to comptometer operators, who check all extensions and compare amounts and serial numbers with sales records of clerks. The sales checks are then entered on operators' sheets, and the totals of these sheets must agree with the total of the clerk's records. The sales checks are then added together, and if not in balance each department is figured separately. The chief operator then secures a total of the charge figures for the day and the checks are given to ledger credit clerks, who sort them according to ledgers, and list and total the checks on adding machines. The total of all the ledgers must balance with the chief operator's total. The checks are then stamped "Audited," dated, and sent to the bookkeeping department with lists attached.

Cash records.—All cash sales checks, refund checks, deposit slips, and cashiers' reports of amount of cash turned in are received from each cashier. The sales checks of each cashier are added and balanced with the cashier's report. If out of balance, the report is rechecked, listed, and shown to the cashier. The checks are then sorted according to departments and checked with the clerk's records. The cash column on the balance sheet is then totaled and compared with the grand total of the cashier's statement. If out of balance, another operator checks back the work by departments and then by sales books.

Cash registers.—The tape showing each amount registered is torn off, and the total shown by the indicator is noted. If the registers stamp the sales checks, the checks are balanced with the cashier's report of receipts from each register. The amount sold by each sales person is entered in the audit cash book. The cash turned in, the tape reading, and the amount of checks must agree. Where registers do not stamp the sales checks, the amounts sold by each sales person is taken off the tape and entered on a register reading sheet. A sales index for each sales person is made showing the number of sales, amount, and department.

Records of cash, checks, money orders, etc., received on account are listed on adding machines, balanced with the cashier's figures, and sent to the bookkeeping department. Refunds are listed separately and balanced with the refund list of each cashier. The grand totals are then balanced and refunds sent to the credit clerk. Cash deposits are listed and balanced with the cashier's figures.

C.O.D. sales.—C.O.D. sales checks are received from the delivery department and sorted according to departments. The extensions are checked, compared with the index cards, and entered on operator sheets. The total of the operator sheets must balance with the total of all the C.O.D. checks. The C.O.D. checks are then sorted according to register numbers and turned over to the C.O.D. bookkeeper. C.O.D. checks that have been paid are withdrawn and attached to their respective cashier's C.O.D. sheets. The total of all checks attached to each sheet must balance with the amount of cash paid in on that sheet, and the total of all C.O.D. checks must balance with the total cash received by the cashier.

The C.O.D. merchandise credits are received from the returned goods department and sorted into register numbers. C.O.D. deposit checks for which merchandise credit is received must balance with the merchandise credit checks.

All C.O.D. checks that are not accounted for are listed and sent to the delivery department to be traced. The operators then check off "void" and "L.O.G." (left-out goods) checks on index cards, note any changes of charge or C.O.D. checks made, and enter the missing checks on the missing check sheet.

Missing checks.—A list is made of the missing checks and the duplicate or tissue copy of sales checks is referred to in tracing lost checks or making out duplicates. A missing-check report is made daily to the general office, and when the credit department holds a check pending investigation they must notify the audit department. If a check is lost by the auditing department an order is required which is filed in the place of the check that is missing.

Credits.—Call credits, split credits, and C.O.D. credits for merchandise returned by the delivery department are received from the returned-goods room. Credits for merchandise returned by the customer are received from the credit office or from the department accepting the goods. Merchandise credits are assorted by departments, checked off the index cards, and listed by machine according to sales and department numbers, with the refunds added to the list. The figures are entered on the general sales sheet, posted in the general sales book, and in a book showing a record of the individual credits. The charge credits are then listed according to ledgers and sent to the bookkeeping department with lists attached.

Missing credits.—All missing call and split credits returned by the delivery department are traced in the returned-goods room. All missing C.O.D. credits are traced in the C.O.D. department. Floor credits are audited according to their serial number and closed out as they go through. A missing list is kept and duplicate copies made out when required.

Deposits.—A duplicate copy of all deposit slips is sent to the cashier attached to a "deposit received" slip. These deposit records are balanced with the figures in the auditing department and entered in a book according to date and serial number. The original deposit slip is retained by the cashier on the floor until allowed, when it is sent to the head cashier attached to a slip "deposits allowed." The auditing department balances these slips with the cashier's list and closes them out in the deposit record book. At the end of the month open deposits are checked with the records in the cashier's office.

Memorandum charges.—Furniture and merchandise sent to customers on memorandum is entered in a special sales book. If the merchandise is returned, a memorandum credit is made out; but if the goods are kept, a regular sales check is made out and a memorandum credit is used to offset the memorandum charge.

General sales record.—When the entire day's sales have been balanced, the totals of the charge checks with the total of the ledgers, employees' mail order, and the credit to cover charges, the cash checks with the cashier's report, the C.O.D. sales with the sheets from the C.O.D. office, are cross-balanced with the operators' sheets and turned in to the chief operator. A daily report is made out showing the charge, C.O.D., and total gross sales per department. The credits are then deducted, giving the net sales. From this report the figures are posted in a book showing the charge, C.O.D., and cash gross sales and credits. In another book the net sales are entered, both books showing the daily, weekly, and monthly figures by departments. A weekly comparative statement is made from the net sales book and a weekly statement made to the paymaster of net department sales for the purpose of figuring the selling costs. At the end of the month charge and credit changes are added to and deducted from the sales report of the last day of the month.

Operators' figures are also entered in the department and individual selling book, which shows the gross and net sales by department and sales clerks. Cash, charge, and C.O.D. checks are counted by department and by sales person and an average value sales report is made at the end of the month showing the gross sales, the number of checks used in each department, and the average amount of each check.

Stock figures.—When an inventory is to be taken, the statistical office sends a notice to the auditing department advising them of the department and date of inventory. The complete sales and returns record of this department is then closed up and the stock figures entered on the notice of the statistical department, which is returned to them.

Special orders.—Special order books are made in triplicate. The original copy is sent to the floor superintendent's file at the cashier's desk, where it is filed according to due date. The duplicate copy is made out and is sent to the buyer's office, where the order to purchase the goods is made out and is filed alphabetically. The tissue copy remains in the book. When the goods are ready for delivery, the sales clerk sends the duplicate copy to the cashier with the sales check. The cashier removes the original from the file and sends both canceled copies to the auditor, who destroys the carbon copy and places the original in its numerical position in the file for special orders.

L.O.G. vouchers.—L.O.G. (left-out goods) vouchers are made on all orders where goods owned by the customer are left at the store. These vouchers show the value of the goods and the promised date. Four copies of the L.O.G. vouchers are made out. The original is sent to the floor superintendent's file at the cashier's desk and filed according to date promised for delivery. The yellow copy is retained in the department and placed in the alphabetically arranged file of unfilled orders. The card copy is attached to the goods, with the exception of the voucher, which is given to the customer as a receipt. The tissue remains in the book.

Each day upon receiving the L.O.G. slips from the cashiers the clerks in the auditing department destroy the duplicate copies and file the original according to its serial number.

Adjustment vouchers.—An adjustment voucher is made out whenever adjustment of a customer's claim involves an expense not properly chargeable to the sales department where the goods were purchased. Floor superintendents fill out the vouchers personally, charging the expense to the department at fault and crediting the department in which the sales were made. In case of damage in delivery, the charge should be made against the delivery department, express company, or post-office, as the case may be. Original copies of the adjustment vouchers are sent to the auditing department, where they are audited and a departmental statement made out.

The company has a semiannual audit performed by A.B. Fisher, C.P.A. Mr. Fisher at the time of his last audit criticized the sales-order procedure and contended that it was much more elaborate than necessary. He asserts that the company incurs much unnecessary expense in its operation. The criticisms of Mr. Fisher are submitted to the executive committee of the board of directors for consideration. They ask Mr. Marsh, the controller of the company, to discuss these remarks. Mr. Marsh states (1) that several years' experience has shown that all parts of this procedure are necessary, (2) that it is substantially the procedure recommended by the National Retail Dry Goods Association, (3) that this procedure is so effective that an audit is not necessary and therefore he recommends the services of Mr. Fisher be discontinued.

Required

Write a report for the use of the executive committee, giving your opinion. If you think the present procedure should be changed state specifically what changes should be made.

REFERENCES FOR FURTHER STUDY

1. Wilson, *Accounting and Office Methods*, chap. xviii.
2. Montgomery, *Auditing Theory and Practice*, chap. xxiv.

CHAPTER XVIII

SALES REPORTS

Organization for Sales Control

The purpose of sales reports is to present information for use in controlling sales operations. Sales control is exercised through the sales organization. The form of the organization affects to a considerable degree the form and content of the sales reports. A discussion of sales reports can be better understood, therefore, with some knowledge of sales organization as a background.

The organization for sales control varies to a considerable degree from firm to firm. It is affected by (1) the volume of sales, (2) marketing methods, (3) personnel, and (4) general organization of each business. These variations can be seen more clearly by considering separately the sales organization of (*a*) manufacturing business, (*b*) wholesale business, and (*c*) retail business.

The simplest method by which the manufacturer may market his product is to turn over his entire output to one or more sales agents who assume responsibility for its sale. Sales agents or brokers exist in most lines but there seems a decreasing tendency on the part of manufacturers to employ their services for domestic sales. They are used extensively for foreign sales. When the sales agent is employed, the manufacturer does not need a sales organization, for the sales agent performs the sales function for him.

If the manufacturer distributes his product through wholesalers, he has traveling representatives who call on customers. These are directed from a central sales office. A sales manager or a vice-president in charge of sales is usually the executive head of the sales organization. If the firm has a national market, it may establish district sales offices under the supervision of district managers who are under the control of the sales manager. Each district manager usually has salesmen reporting to him. The manufacturer may go a step farther and enter the jobbing field. In this case, he establishes branches which sell to the retailer. He may also employ salesmen to call on the retail trade. Each branch is under a branch manager. The branch manager reports either to the sales manager or to a manager of branch houses who in turn reports to the sales manager.

The wholesaler usually has traveling representatives who call on the retail trade. In addition, he may have salesmen who serve the retailers who visit his showrooms. He has a central sales office under the control of a sales manager or merchandise manager. This office directs the activities of all the salesmen. In some cases the wholesaler has his sales force organized on a commodity or departmental basis. There is usually an executive in charge of each department or group of salesmen. These executives report to the sales manager.

The large retailer usually has his business organized by departments with a sales executive at the head of each department. These executives are under the jurisdiction of one sales executive who is frequently termed the merchandise manager. In many department stores the head of each department is termed a buyer and has charge of both the purchases and sales of his department. The merchandise manager then functions as head of both the buying and selling operations. In a small retail business there are sales clerks who are usually answerable directly to the owner.

If a firm has foreign sales, an export sales division may be established. The head of this division should report to the sales manager.

Sales administration can be broken down into two main divisions—sales operating and sales planning. In a small business, sales planning is carried on by the major sales executives who are also responsible for sales operating. In a large business, sales planning is of sufficient importance to make advisable the appointment of staff assistants in the office of the sales manager who devote their major energies to this task. In some firms a "sales engineering" division is given jurisdiction of sales planning. The head of this division should report to the chief executive of the sales department.

The advertising manager is usually subordinate to the sales manager. In some cases he is co-ordinate with him and both report to a vice-president in charge of sales or a vice-president in charge of marketing. In a few cases he is entirely independent of the sales organization and reports directly to the general manager. We will assume here that the advertising department is a subdivision of the sales function and should report through the chief sales executive.

The head of the sales department usually reports to the general manager or president. In some firms he is a vice-president and director. He is usually a member of the advisory committee, composed of the principal executives, which assists the general manager in an advisory capacity. In chapter i we argued for the inclusion of sales, purchasing, and traffic as subdivisions of the marketing function. Following out this line of reasoning we would logically have a vice-president in charge of marketing to whom the sales manager, purchasing manager, and traffic manager should report. Although we believe this a desirable form of organization, most firms have not yet reached this stage of development in building up a functional organization.

Reports Needed for Sales Control

A variety of reports are required to present for administrative use the information needed in controlling sales operations. Each unit of the sales organization needs reports on the operations of its subordinates. For example, the branch manager needs reports showing the operations of salesmen who report to him; the manager of branch houses needs reports covering the operations of the branches and the sales manager needs reports covering the operations of all units of the sales organization. In addition, the board of directors, the budget committee, and the general manager need sales reports giving summarized information concerning sales operations.

It is impossible to describe all the reports needed by these various units of organization. Neither is it possible to state definitely which units should receive any specific report. The amount of information needed by the directors and general officers as well as the amount needed by the sales executives is affected by many factors. We shall attempt here only to show the type of reports useful to these various parties.

The Sales Estimate

One report of primary importance to the board of directors and general officers is the sales estimate. It gives them an opportunity to pass on sales plans before these plans are executed. It also gives them an opportunity to check up the plans of the other departments in terms of the sales plans and vice versa. The sales estimate should be presented in such form that it will show (1) the sales classified by units of organization or classes of commodities or both; (2) a comparison between estimated sales of this period and actual sales of last period; and (3) the estimated results from the sales of this period compared with the actual results from sales of the last period. A form suitable for this purpose in a mercantile business organized on a departmental basis is shown in Chart XV.

The sales estimate usually shows a variation from past sales. The information on which the estimated change is based should be presented to the directors and executives in condensed form. Graphs can often be used to advantage for this purpose. For

CHART XV

DEPARTMENTAL BUDGET—1924									
Department	Inventory Beginning of Year	Last Year's Sales	Gross Mark-up Last Year	Estimated Sales This Year	Estimated Mark-up This Year	Estimated Gross Profit	Estimated Purchases	Estimated Cost of Purchases	Estimated Inventory at End of Year
A B C D E F Etc.									
Total									

example, it may have been found that the cycle trend of the company's product lags six months behind the general cycle trend. By a graph the general trend can be shown and the probable future trend of the company's product shown by another graph with the appropriate lag between the two. A report on general market conditions accompanied by a discussion of their probable effect on the sales of the company is also useful. This information can be presented by graphs or tables. The former are usually more understandable to the typical executive. The sales executives will have, of course, various reports containing the information obtained by sales research.

The form of sales estimate shown in Chart XV gives the total sales for the budget period. The sales executives, the treasurer, and the buyers will want a statement showing the sales distributed by months and by departments or classes. In manufacturing firms this report may show estimated sales by items. A possible form for this report is shown in Chart XVI.

Report on Estimated Selling Expenses

A companion report to that shown in Chart XV is one showing the estimated cost of securing the estimated sales. Chart XV shows the estimated gross profits but the directors and executives are primarily interested in net profits. Chart X (see p. 351) shows the estimated selling expenses in useful form. By subtracting the total estimated selling expenses as they are shown in Chart X from the total estimated gross profit as shown by Chart XV, the estimated net selling profit can be obtained. If it is possible to allocate the selling expenses by departments or commodities two extra columns can be added to Chart XV and the estimated net selling profit shown on this statement.

Report on Volume of Sales

Another report of primary importance to directors and executives is one showing a comparison of actual sales with estimated

CHART XVI

MONTHLY ESTIMATE OF SALES

Dept or Item	January	February	March	April	May	June	July	August	September	October	November	December	Total
Totals													

sales. A useful form for this report is shown in Chart XVII. Several useful comparisons are shown on this report. Estimated sales for the month, estimated sales for the year to date, sales of last year to date, and sales for last month are all used as standards by which to judge current performance. If the sales force is organized by departments, branches or districts, this report makes possible the use of the performance of each unit as a standard for judging the performance of all other units.

Reports on Selling Expense and Net Profits

Two companion reports to the report on sales volume are the monthly report on selling expense and the monthly report on net profits. The form of these reports is shown in Charts XVIII and XIX respectively. The report on selling expenses provides a means of:

1. Checking actual expenses against estimated expenses.

2. Comparing the ratio of expenses to sales during the current and past periods. This comparison is of especial importance, as increases and decreases in selling expenses are of significance only in comparison with the results obtained.

3. Comparing the ratio of expenses to sales in different selling units. This comparison is significant in judging the efficiency of departmental executives.

A report showing useful comparisons between sales and selling expenses in a department store is given in Chart XVIII.

The report on net profits affords a means of:

1. Checking actual net profits against estimated net profits.

2. Comparing the ratio of net profits to sales during the current period with the same ratio for the past year. This comparison is a very important one, since it is not an increase in sales but an increase of profits that is the goal.

3. Comparing the ratio of profits to sales in different selling units. This comparison is important in judging the efficiency of the management of the various units.

CHART XIX

MONTHLY REPORT ON NET PROFITS

MONTH OF——————192——

Department	This Month	Estimated This Month	Per Cent Increase or Decrease	Last Month	Per Cent Increase or Decrease	Same Month Last Year	Per Cent Increase or Decrease	Ratio to Sales for This Year	Ratio of Estimated Profit to Estimated Sales	Ratio of Net Profit to Sales for Last Year
A										
B										
C										
D										
E										
F										
G										
Total										

CHART XX

MONTHLY REPORT ON ORDERS RECEIVED

Department Class or Item	This Month	Estimated This Month	Percentage of Increase or Decrease	Last Month	Percentage of Increase or Decrease	Last Month Last Year	Percentage of Increase or Decrease	Total to Date This Year	Total to Date Last Year	Percentage of Increase or Decrease
Total										

A report on unfilled orders may be of service to supplement the report on orders received and the report on shipments. Some firms have a large quantity of unfilled orders at certain periods and some have a considerable quantity at all times. In every firm, however, there is a normal amount above which the unfilled orders should not go. If this amount is exceeded it is evidence of a lack of co-ordination between the sales function and the procurement function. The report on unfilled orders should show as a minimum: (*a*) the unfilled orders now on hand; (*b*) the "normal" amount at this period of the year; (*c*) explanation of the variations from normal.

Report on Inventories

Excessive inventories usually entail greater loss than an excessive amount of unfilled orders. The carrying charges on inventories will soon wipe out the profits anticipated when the goods were procured. Moreover, the failure to secure for current uses the capital invested in the inventories may lead to financial difficulties if not insolvency. Standard quantities should be established on all inventories and frequent reports made showing a comparison between the actual and standard. A simple form of report for this purpose is shown in Chart XXI. The turnover figures shown by this report should be watched carefully for a significant decrease in this ratio is a danger signal. A report of this nature should be prepared for each unit of the organization which is responsible for the maintenance of an inventory. These separate reports may be condensed for the use of the major executives.

Supplementary to the major reports on inventories a more detailed report may be prepared showing the slow-moving items of stock. With this information available the sales department can make extra efforts to move these goods. Mercantile companies sometimes give their salesmen an extra commission on slow-moving items in order to encourage them to use greater efforts to sell these.

CHART XXI

MONTHLY REPORT ON INVENTORIES

Department Group or Sales Unit	Actual Inventory	Estimated Inventory	Percentage of Increase or Decrease	Shipments This Month	Estimated Shipments	Percentage of Increase or Decrease	Turnover This Quarter	Turnover Same Quarter Last Year	Comments
Total									

Salesmen's Reports

Except in the very small retail store where the owner is in intimate contact with all his employees, it is necessary to have some kind of reports by which to judge the work of salesmen. In a retail store it is customary to have sales classified by salesmen and a report prepared showing the sales made by each salesman. In many stores this report is given to the salesmen as well as the executives. The salesman can see from this report what he is accomplishing himself and can check his work against that of his fellow-employees. A simple form of report for this purpose is shown in Chart XXII. This report can be prepared by the accounting or statistical department from the duplicate sales tickets submitted by the salesmen.

If a company has traveling salesmen it must usually depend on them for three reports: (*a*) sales order, (*b*) report on prospects, and (*c*) expense report. The company supplies the salesman with sales-order blanks, and it is only necessary for him to fill in the required information and forward to sales office when he receives an order. A record of prospects should be maintained on a standard card. One part of the card gives essential information concerning the prospect. The second part gives the results of the salesman's effort to sell the prospect. If the prospect originates with a salesman he fills out both parts of the card. If the prospect originates with the office, it fills out the first part of the card and sends it to the salesman. He fills in the second part of the card and returns. If a company pays the expenses of its salesmen it needs frequent reports showing what their expenses are. These reports are quite simple in form. Chart XXIII shows an expense report used by a firm of professional accountants to control the expenses of members of its staff when they are on engagements outside of the city where the firm is located. The reports needed by a mercantile firm will vary in form from this illustration but they will be of a similar nature.

CHART XXII

MONTHLY CLERK'S SALES REPORT

Dept. 25 — Month of July, 1923

Name	Sales		Days	Weekly Salary		Per Cent	Standing
M. Dawson	$1919	02	27	$25	00	5.2	3
C. Cline	2201	70	25	17	00	4.4	1
D. Mason	1943	30	27	15	00	3.9	2
F. Horner	790	88	27	12	50	6.3	8
J. Jones	1080	74	18	16	00	6.0	6
A. Barnes	1079	89	27	13	00	4.8	7
E. Eaton	1262	95	21	17	50	5.5	4
L. Hanson	1262	70	27	16	00	5.0	5

Total Sales $11,541.18 — Total Salary $554.75 — Average Per Cent 4.8

CHART XXIII

FRAZER & TORBET

CERTIFIED PUBLIC ACCOUNTANTS

WEEKLY EXPENSE STATEMENT

Week Ended________________19____

Client________________________

Engagement________________________

Accountant________________________

Address________________________

	Transportation				Meals	Hotel	Incidentals	Remarks
	From	To	R. R. Fare	Pullman				
Sunday								
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								
TOTALS								

Balance	$______	
Advanced	______	
Total		$______
Expenses—R.R. Fare	$______	
Pullman	______	
Meals	______	
Hotel	______	
Incidentals	______	
Total Expenses		$______
Balance		______

Entered________

____
Accountant

____
Accountant in Charge

QUESTIONS FOR CLASS DISCUSSION

1. "The form of the sales organization affects to a considerable degree the form and content of the sales reports." Illustrate concretely how this is true.
2. The X Manufacturing Company markets its products through manufacturers' agents. Which of the reports discussed in this chapter will be of service to it? Are there other reports which it may need?
3. The president of the French Manufacturing Company contends that the information he desires concerning sales is entirely different from the information desired by the sales manager and consequently he desires an entirely different group of reports from those used by the sales manager? Do your agree?
4. What factors should be considered in deciding whether the sales reports covering the operations of branch and district offices should be prepared at these offices or at the general office?
5. What are the differences in the duties of a merchandise manager and the duties of a sales manager?
6. Do most firms recognize sales planning as a function distinct from sales operating? Why? What advantage is gained by recognizing this distinction?
7. What advantages and disadvantages do you see in having the advertising manager subordinate to the sales manager?
8. What advantages and what disadvantages do you see in having a vice-president in charge of marketing with the sales manager, purchasing manager, and traffic manager reporting to him?
9. What relationship should exist between the sales-engineering division of the sales department and the statistical division of the controller's department?
10. The president of the White Corporation states it is the function of the controller to study reports and make recommendations based on these, so he does not think it necessary to have sales reports for his own use or the use of the directors. Do you agree?
11. Make a list of at least five sales reports not discussed in this chapter which would be useful to one or more firms with which you are familiar. If you are not sufficiently familiar with the operations of any firms to use them for this purpose, describe the organization and operations of an assumed firm and base your reports on your assumptions.
12. The vice-president in charge of sales receives a report showing a large increase in unfilled orders over previous periods. What does this indicate? Is it a favorable or an unfavorable indication?
13. To what degree do the reports discussed in this chapter fulfil the requisites of executive reports given in chapter i?

EXERCISE NO. 31

A large corporation with a well-developed system of budgetary control uses the following reports in controlling its sales and selling expense budgets:

There is kept at the general office a chart for each district, laid out on tracing cloth, ruled vertically for months and horizontally for the control accounts, amount of sales, and cost per unit of sale. Under each month are two columns, one headed "Estimated," the other "Actual." Under the heading "Estimated" are entered the figures from the budget for each account for each month. When the books are closed at the end of the first month of the year, the actual figures for that month for each district are entered on the chart in the column marked "Actual" and a blueprint of the result is sent to the district manager.

With this chart in hand he has before him an absolutely impartial critic of his work for the month, a comparison of what was expected of him and what he did, item by item. As the figures for each succeeding month are entered on the charts, new blueprints are sent to the districts and the preceding prints destroyed, so that the district manager has on a single sheet of paper the complete history of his year to date, and no confidential records are available in his office except the single sheet of paper for the current month, which is always in his immediate possession.

While a duplicate set of these district blueprints is carried at the main office available for reference, they show of necessity too much detail to convey an adequate understanding of the progress of the sales organization as a whole, and a condensed record is therefore kept for executive guidance. On a sheet, of a form and size convenient for a standard desk book, and ruled into fourteen vertical columns, each district has assigned to it nine lines. The columns are headed, respectively "District," the twelve months of the year, and "Total." The nine horizontal lines are divided into groups of three each, the first group marked "Expense," the second "Production," and the third "Expense per Sales Unit." The first line of each of these groups is labeled "Actual—Preceding Year": the second line of each group "Estimated—Current Year": the third line of each group "Actual—Current Year." The first and second lines of each group under each district are entered in full at the beginning of the year, the figures for the first line being drawn from the preceding year's records and the second line from the budget. The third line is entered month by month as the year progresses.

One sheet as described above shows the figures for each district monthly Another sheet of the same arrangement shows the same figures cumulatively month to month. From these two sheets it is possible at a glance to compare the operation of any district and of the business as a whole for any given month, or for the year up to any given month, with the preceding year and with the estimates for the current year. For example: A brief inspection, without making additional figures, shows whether any district is gaining or losing over the preceding year and what has been the nature of its movement through that part of the current business year already elapsed. It shows whether the district is running true to its expense and sales estimates. In case it is running above or below its estimate it shows whether the sales and expense curves are parallel, or whether, for example, the sales forecast is being followed and the expense run up or whether the expense is following the estimate forecast but the sales are falling off, etc. In other words, it shows whether the business in that district is running properly, or, if it is not, in exactly what direction it is failing. Experience has demonstrated that these horizontal lines and figures in practice visualize themselves as curves to those who are accustomed to refer to them, so that the tendencies are graphically, as well as accurately, presented.[1]

Required

1. Construct the reports discussed in this exercise.

2. State the advantage and disadvantage of this method of controlling sales and selling expense.

3. Suggest other reports which might be used for the same purpose by this company. You are at liberty to make any assumptions you desire about the organization and operations of the company but state your assumptions in your answer.

REFERENCES FOR FURTHER STUDY

1. Galloway, *Office Management*, chap. xxiv.
2. Baker, *Preparation of Reports*, chaps. ix and xii.

[1] *Administration* (January, 1923), pp. 4–6, by the Ronald Press Company, New York.

PART V

PURCHASING CONTROL

CHAPTER XIX

PURCHASING RESEARCH AND RECORDS

Need for Control of Purchasing Operations

All mercantile and industrial firms must make purchases of commodities. In a mercantile business merchandise is purchased in the finished or salable form. In a manufacturing firm, materials are purchased for use in the production of the commodity or service sold by the firm. What constitutes finished stock in a particular business depends upon the character of the product offered for sale to the customers of the business. Materials are either (*a*) raw materials; (*b*) goods in process; or (*c*) finished stock, depending upon the stage of their utility to the customers of the company. Finished stock is that which is in the form demanded by customers.

The finished stock of a company may be produced in its factory as a result of operations performed on raw materials; or it may be assembled from parts purchased in a finished state; or it may be purchased in its finished form. In any case, purchases must be made either of the finished material or of its components. In addition, all firms must purchase the equipment and supplies needed in carrying on the activities of its various departments.

The activities of all the departments of a business are dependent to a considerable extent on securing the right materials and supplies at the right time. The production department must have the correct materials at the time needed if the production activities are to be unhampered. The sales department must have available the proper finished goods, otherwise sales demands cannot be satisfied. All the departments must have the required equipment and supplies at the proper time if they are to render efficient service. Moreover, if the greatest profit is to be realized, the purchases must be secured as economically as possible. The expenditures for materials, equipment, and supplies are usually the largest item among the disbursements of a business; therefore, the necessity for exercising effective control of the price of these commodities is apparent.

Requisites for Purchasing Control

The effective control of purchasing operations requires the following:

1. The procurement of the information needed in preparing the buying program and in carrying out the purchasing procedure. To make this information readily available in useful form, a proper system of records is necessary.

2. The preparation of a purchasing program and the preparation and execution of a purchasing procedure which will facilitate the successful operation of the program.

3. The preparation and use of reports providing information needed by executives and employees in performing (1) and (2).

These are the essentials for purchasing control stated in the briefest possible form. They are based on the assumption that the purchasing department will restrict its activities to the purchase of goods and the approval of purchase invoices. It is assumed that it will not be concerned with the physical handling of goods.

Information Needed in Controlling Purchasing Operations

The executives responsible for controlling purchasing operations must make decisions which are affected by numerous factors. Comprehensive information is necessary if they are to make these decisions intelligently. The nature of this information is indicated by the following classification:

1. Information concerning general market and trade conditions.

2. Information concerning the market conditions specifically affecting the products which the company desires to purchase.

3. Information concerning the quantity and quality of the products needed by the company.

4. Information concerning the orders issued and the purchases which have been completed.

Information concerning General Market and Trade Conditions

Knowledge of market and trade conditions is necessary in deciding the quantity of goods to buy, the price to be paid and the time of purchase. The information of this nature needed by the purchasing department is essentially the same as that needed by the sales department (see p. 274). If there is a central research or statistical department, it can provide most of the information needed by both departments. The procurement of this information by a central agency has two decided advantages: (1) it prevents duplication and (2) it assures that the sales and purchasing departments base their plans on the same premises.

The extent to which the purchasing department uses such information depends on (1) the thoroughness with which the sales program has been worked out; and (2) the authority granted to the purchasing department in making purchasing plans. If a comprehensive system of budgetary control is operated the sales program and the purchasing program will be correlated at the time the periodical budgets are prepared. The purchasing department should present at this time any information it believes justifies a purchasing program which does not harmonize with the sales program. Under normal conditions the purchasing department should not deviate from its original program without permission from the budget committee. If budgetary control is not in force, the purchasing department is thrown largely on its own resources and usually is given considerable authority in judging when and in what quantities to buy.

Similar conditions prevail where the purchasing department is given the authority to speculate on the commodities used by the firm. In the textile trade, for example, cotton and cotton cloth are sometimes purchased several months in advance of current needs when a rising price is anticipated. In such cases, the purchasing manager makes extensive use of market data in judging when to buy and in what quantities. The merits of this plan are discussed in the next chapter.

Information concerning Specific Market Conditions

Just as the sales department needs information showing the effect of general market conditions on the products which it has to sell, the purchasing department needs information showing the effect of these conditions on the products it desires to buy. It has been explained that the prices of some commodities precede, and the prices of others lag behind, the general cycle trend. The relation to the business cycle of the commodities sold and the commodities purchased by a firm may be quite different. This is especially likely to be true in a manufacturing firm where the raw materials purchased may be so distinctly different from the product manufactured. The purchasing department should work in co-operation with the research or statistical department in developing information which will show the position in the cycle trend of the products to be purchased.

The purchasing department also needs information concerning current market conditions in carrying on its day-by-day operations. For example, the purchasing manager should have information concerning the current prices of all the commodities which he buys so he can judge the fairness of the prices offered to him. There are many sources from which information concerning prices may be obtained. The following are the most important of these:

1. Commercial and financial newspapers such as are published in the large cities. These give the current prices of the basic

commodities. The purchasing manager will probably be in the market for some of these commodities, and the prices of the remainder will be useful in checking up the market tendencies as reported by the research or statistical organization.

2. Trade journals such as are published in many lines. The purchasing manager should subscribe for those journals covering the lines in which he is most interested.

3. Statistical organizations which sell their services to business firms on a yearly basis. There are several of these which collect among other things information on commodity prices.

4. Bulletins of the United States Department of Commerce which contain useful information concerning prices.

5. Quotations of vendors. Many companies send out price lists for advertising. Quotations may be obtained from others on request. Much information on prices can be obtained from discussions with salesmen.

The purchasing manager should have a systematic method of recording and filing all this information. The matter of a general nature such as that which occurs in periodicals may be filed under appropriate headings. Information concerning the commodities purchased most frequently may be tabulated and kept in a card file for ready reference.

It is essential that the purchasing manager has accurate and comprehensive information concerning sources of supply. He should know the present and potential quantity which may be obtained from each source. He should also know the specific firms from which he can obtain the articles he desires to purchase. Considerable information can be obtained from the catalogues of vendors. There should be a systematic method of handling these catalogues. In the first place each catalogue received should be analyzed to see the different kinds of goods contained in it. A separate card showing pertinent facts should be prepared for each class or kind, and these cards should be placed in a convenient file. The catalogue should then be filed in a cabinet designed so that different sizes of catalogues may be conveniently filed in it. If this method is followed, it is easy for the purchasing agent, by looking in his card file, to locate all the catalogues containing any item of goods in which he is interested.

For local purchasing in a large city the classified business section of the telephone directory is very useful. There are a number of commercial directories which give useful information. The buyer will find all these sources of information useful but he must seek additional information by personal investigation. He should question salesmen closely concerning their lines; he should examine catalogues, advertising literature, and trade publications; and he should pay visits to factories and warehouses with the purpose of discovering potential sources of supply. If he is familiar with all sources of supply in each line he has a wide selection from which to choose desirable connections.

Information concerning the Quantity and Quality of Products Needed

It is essential that the purchasing manager have information concerning the probable consumption of materials or the probable sale of merchandise in planning his purchasing program. The best guide for the purchasing manager is a purchasing budget based on the sales or production budget. The preparation of a purchasing budget for a mercantile business is discussed in the following chapter, while the purchasing budget for a manufacturing business is discussed in chapter xxvii.

If a purchasing budget is not available, then it is necessary for the purchasing manager to base his purchases on previous consumption modified by expected changes in the sales or production volume. This method always leads to inaccuracies, but, if the purchasing manager cannot secure a sales budget or a production budget on which to base his plans, he cannot make an accurate program. Information concerning past consumption can often be obtained from inventory records if they are kept properly, so that they show the issues from stock. If perpetual inventory records are not maintained, it may be necessary for the purchasing manager to develop for his use records giving the information he desires concerning consumption.

The purchasing manager must ascertain (1) the quality of goods which will best serve the needs of the sales or production program and (2) that the goods purchased correspond with the standards of quality adopted. To ascertain what the quality of the products of a company should be is an important problem in all firms. It is especially important in the case of a firm selling a variety of products which are subject to style and fashion changes. Whether a company is to be known as one catering to the low-priced, medium-priced, or high-priced trade is a question of such major importance that it should be decided by the directors in the exercise of their policy-making function. The adaptation of the general policy to the special circumstances existing under varying conditions is the task of the sales manager and purchasing manager working under the direction of the general manager and with the assistance of the controller. In a mercantile business the buyers must be given considerable liberty in the selection of styles, qualities, and price ranges of the goods purchased. They cannot purchase in accordance with exact specifications. This is one reason why the authority for buying and selling is vested in the same executives in many mercantile establishments. For the same reason, buyers must personally inspect the goods bought when they are received to see that they are correct as to style and quality.

In a manufacturing business, it is usually possible to prepare specifications stating the quality of the product desired. Specifications are of value in several ways:

1. In establishing them, it is necessary to give careful attention to the product and to consider both its quality and form. This will tend to secure better materials.

2. Their preparation and use will tend to eliminate unusual and special items and bring about the use of standard materials.

3. Their use will decrease the task of both the operating departments and the purchasing department. The former in requesting purchases need only to refer to specification by number. The latter can attach specification to the purchase order and thereby easily inform vendors what is desired.

4. Their use decreases errors, since if they are worked out with care they are more exact than are instructions written on the purchasing order.

5. They serve as a standard by which to judge the materials purchased. By this means a company can assure itself that it is securing the quality of materials which it purchased.

Illustration of Specification

Specifications vary widely depending to a considerable degree on the nature of the product they cover. The following is indicative of their nature:

GENERAL SPECIFICATIONS FOR SECTIONAL FILE CASES, BOOKCASES, TRAYS, AND CABINETS[1]

Workmanship and material.—All workmanship must be the best known to the trade; all material must be the best of the kind specified.

Lumber.—Lumber must be bright and harmonious in color, thoroughly air-seasoned, properly kiln-dried, and free from knots, shakes, sap, discolorations, or other defects. Quartered white oak must be strictly white oak, no part of any piece to have the medullary ray at a greater angle than 45° to the quartered face, and all pieces in any one article must be well matched in color, figure, and grain. All exterior surfaces on articles specified as quartered oak must show strictly white oak, edges of stiles on face of case to be veneered, and legs of sanitary bases to be built up with interlocking joint to show quartered face on four sides.

Poplar, ash, chestnut, beech, or birch may be used for all interior framing.

Construction.—Framing to be by mortise and tenon or dovetail, as may be most suitable. Mortises must be as deep as possible, tenons full depth, and not less than one-third the thickness of the material.

[1] L. C. Marshall, *Business Administration*, pp. 371–73.

Dovetail must extend full width of the joint and must be finished flush and show no openings.

Joints must be true and perfect, well glued throughout, and held under pressure until glue has set. Best Irish glue must be used and must not be used after reheating has affected its strength.

All moldings to be worked on solid wood; no moldings, except glass beads, to be nailed on.

All ends to be paneled.

All base sections must have glue blocks at angle of rail and leg, to run full width of rail and of ample thickness, to be of hardwood and well glued.

Each section to have frame at top and bottom of interior, with at least three rails in frame, grooved to accept three-ply panel inclosing top and bottom of sections.

Exteriors and partitions to be secured to the frames by dado or dovetail construction, well glued and nailed.

Backs to be three-ply, exterior ply to be beech, birch, or quarter-sawed red gum, except when finished backs are ordered, when exterior ply shall match the wood used in sides of section, finish veneer to be not less than $\frac{1}{16}$ inch thick when laid. Ends to be rabbeted to back, and back to be securely glued and nailed to ends and interior frames with cement-coated nails.

All partitions to be solid, face edge to be lipped to match the rest of the unit; partitions and rails to finish flush on front of section.

FINISH

Preparation.—All surfaces must be smooth, and those to be varnished, except unexposed surfaces must be made perfectly smooth by scraping and sandpapering. Any article which shows dark spots due to filler sticking to surfaces not properly smoothed may be rejected. The use of putty is prohibited except in nail holes.

Materials.—Stain and filler must not cloud the grain and must leave the flake in quartered oak as clear as possible. Shellac must be white shellac cut in grain alcohol. Varnish must be an approved brand of standard manufacture and free from rosin; samples of varnish to be submitted.

Colors.—Samples of standard oak and mahogany colors and finish may be seen at the office of the General Supply Committee.

Standard finish.—Hardwood exteriors to be stained, thoroughly filled to an even color, the filler thoroughly cleaned up, allowed to set, given one coat of shellac, sandpapered smooth, and three coats of varnish, each allowed to dry hard and be sandpapered smooth before the next coat is applied, the last coat to be rubbed with pumice and oil to a semidead gloss. No gum runs will be allowed.

Interiors of all articles, including drawers and pigeonholes, except surfaces to be lubricated, must have one coat of shellac and one coat of varnish. The front edges of shelves and division pieces under $\frac{1}{4}$ inch thick must match the exterior in color and receive the same finish as exterior. Drawer sides and runs to be lubricated with paraffin oil. Panels must be stained and filled before setting. Interior of doors to be rubbed, same as exterior, after last coat.

Unexposed parts.—Tops, bottoms, backs, and all unexposed parts, except drawer sides and runs, which can be reached after assembling, to have one coat of shellac and one coat of varnish.

Interior of bookcase sections to be stained, and to receive one coat of shellac and one coat of varnish.

Sides, backs, and bottoms of drawers when made of metal to be finished with baked enamel, guaranteed against rust.

Hardware.—Pulls, label holders, rod fronts, handles, etc., are to be solid cast bronze, brush finish, to match hardware on cases in the office of the General Supply Committee.

Information concerning Orders and Purchases

The purchasing department should maintain a record of all orders issued. This record should make it possible (1) to ascertain the total orders outstanding at any time and (2) to follow up each order so that it will be filled at the proper time. If it is necessary to know the orders outstanding frequently it may be advisable to keep an order record in which each order is registered. If this information is needed only occasionally it can be obtained from the duplicate copies of the purchase order in the unfilled order file. One or more copies of the order can be used for follow-up purposes in the manner suggested in chapter xv.

Sometimes it may be useful to have a classification of unfilled orders. Useful classifications are

1. By month of delivery.
2. By line or department.
3. By vendors.

In some lines, orders are placed several months in advance of the date of delivery. In such cases it is quite important to know the month of delivery of the goods for which orders are outstanding. Without this information it is impossible to determine the proper delivery dates of the goods yet to be ordered. If orders are outstanding for goods to be delivered three months hence, this can have no effect on purchases necessary to satisfy the needs of the current month. It has an important bearing, however, on the placing of additional orders to be delivered in three months. The time of delivery is also of value to the financial executive in arranging for the payment of the goods to be delivered and to the operating superintendent or traffic manager in planning to store and handle them. Sometimes it is useful to have outstanding orders classified by week of delivery so a more effective control can be exercised over them.

In many cases it is useful to have the outstanding orders classified by commodities or lines of merchandise. This classification is necessary to make the classification by months of delivery effective as a means of controlling the quantity of goods ordered. Obviously purchase orders are issued for specific articles and it is necessary to know the amount of each article ordered before the quantity to be ordered can be determined. If perpetual inventory records are maintained this information will usually be shown on these. In some cases, however, the purchasing manager will want this information available for use at all times so he may keep records for his use.

It is sometimes useful to have outstanding orders classified by vendors. This information may be of service to the purchasing manager: (1) in restricting his purchases with vendors in accordance with the credit limits set by the vendors; (2) in getting better prices or discounts from vendors by showing them the quantity of goods being purchased from them; (3) in distributing orders among vendors if that is the policy of the firm.

The accounting for purchases usually does not present any difficult or complex problems. After the purchase invoice is approved by the purchasing department, it is sent to the accounts payable section of the accounting department where it is checked as to extensions and quantities and a voucher prepared for it. Entry is then made for the invoice in the voucher record. In a small business this record may be in columnar form, each column representing an account. In most firms, the number of accounts represented in the voucher record is so large that it is not practicable to have a separate column for each. Under these circumstances two methods may be followed. Under the first method, items of a similar nature are placed in the same column, but each item is marked with a symbol. At the end of each month the items are classified by symbols and totaled. A compound journal entry is then made, distributing the total of each column to the various accounts represented by the symbols. Under the second method, the columnar record is dispensed with and a card is made for each account. Machines are used to post to the cards, and the accumulated total resulting from the individual postings is posted to a control card which represents the total to be transferred to the credit of accounts payable in the general ledger. If desired, the cards can be divided into divisions and a control card established for each division. This facilitates the correction of errors in posting, since the error is easily localized. The second method is usually to be preferred, for it decreases the amount of work to be done at the end of the month when much work needs to be done and speed is essential. It also decreases the possibility for error.

After the invoice is entered in the voucher record, it is filed with the voucher in the unpaid voucher file under the date of payment. On the date of payment it is removed from the file, and a check prepared for its payment. The check accompanied by voucher and invoice is sent to the treasurer for his signature. Record is made in the cash disbursements journal for the check, and the paid voucher and invoice are filed in the paid-voucher file in numerical order. Sometimes a duplicate of the voucher is made and filed under the name of the vendor.

Most firms do not classify purchases as extensively as they classify sales but some classification of purchase data is often useful. The most customary classifications are (1) by commodities, (2) by departments or units of responsibility, and (3) by vendors.

If a commodity analysis of sales is made, it is desirable to have a commodity analysis of purchases so that gross profit by commodities can be obtained. This analysis is feasible only when a few commodities are handled. For example, a company dealing in coal, wood, and ice can use such an analysis advantageously. In a manufacturing business, all purchases are analyzed on a commodity basis for the inventory records are maintained on this basis.

Both sales and purchases may be classified in terms of units of organization in a business which has a departmental or territorial organization. If expenses can be classified in the same manner the efficiency of the departmental or territorial managers can be judged in terms of profit and loss. For example, in a department store, the departmental managers are held responsible for the operations of their departments and the sales and purchases are analyzed by departments so that departmental profit and loss can be determined. In a business with branches, the responsibility for the management of each branch is imposed on the branch manager, and an analysis of purchases, sales, and expenses gives useful data for judging his efficiency.

The purchasing manager may find it of value in making contracts with vendors to know the amount of previous purchases from them. This information may enable him to obtain better prices or discounts. He may use this information in a similar manner in which he uses information concerning orders placed with different vendors. The purchasing manager may maintain a statistical record by which he obtains this information or it may be obtained for him by the accounts payable section by the use of a duplicate voucher which will be filed by vendors.

Other methods of classifying purchases are by terms of purchase and by buyers. The former may be of service to the treasurer in planning financial needs. The latter may be of service in assigning quotas to buyers, keeping a check on the amount purchased by different buyers, and in judging the wisdom of continuing the services of particular buyers.

In each business there is one classification of purchases which is most significant, and this classification is set up in the ledger accounts. If other classifications are desired they are kept in supplementary records. Although these records may be kept in different departments they should be under the functional control of the controller.

QUESTIONS FOR CLASS DISCUSSION

1. "The buying process in retailing is still one of individual ability rather than standardized thought and organization." What does this mean? If this be true does it mean that standards and records are not of service to retail buyers?
2. "The activities of all the departments of a business are dependent to a considerable extent on securing the right materials and supplies at the right time." Illustrate.
3. "The purchasing department is not interested in market trends, for its only function is to buy the goods called for by the sales program at the time when they are needed." Do you agree?
4. Give illustrations of information concerning market conditions which would be useful to a purchasing department and explain concretely how this information could be used.
5. Illustrate how the information concerning (*a*) supply, (*b*) consumption, (*c*) quality, and (*d*) prices which is desired by a manufacturing business differs from the information desired on these subjects by a mercantile firm. Explain how the method of obtaining this information in the two cases differ.
6. What factors should a company consider in deciding whether it should handle low-priced, medium-priced, or high-priced goods?
7. Illustrate the ways in which specifications may be used in a manufacturing business. Can specifications be used in any way in mercantile establishments? What substitute is employed where specifications cannot be used?

8. Who should be responsible for preparing specifications?
9. The purchasing agent of the X Corporation maintains in his office an elaborate system of records, and prepares from these numerous reports for his use in controlling the purchasing operations. Do you approve of this plan?
10. The Y Corporation desires to instal a voucher record for recording its purchases. The accounting department is entirely unfamiliar with the operation of such a record. State the instructions you would give the employees of the department concerning its operation.
11. "The cost of goods sold includes all expenditures necessary to place merchandise in a position and in condition to sell." Give a list of such expenditures. Should buying expenses be included here?

EXERCISE NO. 32

The Studebaker Department Store has ten departments, including a grocery department. The executives of the store are in disagreement concerning the type of merchandise the store should handle. The following recommendations have been made by executives:

1. That all departments handle high-priced goods and seek to build up a reputation for handling only high-grade merchandise.

2. That all departments handle low-priced goods and seek a large volume of sales from those seeking reliable but low-priced goods.

3. That all departments handle medium-priced goods and seek to secure those customers who occupy a middle ground. Those who recommend this plan contend that many who formerly purchased high-priced goods are now forced to purchase medium-priced goods because of the ascending price curve. They also contend that the increase in wages of laborers has made it possible for many of them to purchase medium-priced goods. They feel, therefore, that if the store specializes in this type of goods it will secure a large and profitable volume of sales.

4. That some departments should handle low-priced goods, some should handle medium-priced goods, and others should handle high-priced goods.

5. That each department should handle each type of goods.

6. That the store should carry on experiments to determine which type of goods is the most profitable.

Required

Write a report for the use of the president and board of directors outlining the factors which should be considered in deciding which of these recommendations to accept. If statistical data are required, give the nature of these data and explain how they will be obtained. Give particular attention to recommendation 6, and outline fully how you think such experiments should be carried on.

EXERCISE NO. 33

The trial balance of H. M. Jones on December 31, 1923, is as follows:

Cash	$11,000	
Bills receivable	1,300	
Accounts receivable	2,500	
Merchandise	3,300	
Furniture and fixtures	200	
Real estate	7,000	
Bills payable		$ 2,700
Accounts payable		4,500
Shipment No. 1	302	
Shipment No. 2	520	
Shipment No. 3	2,000	
Expense	550	
Merchandise discount	130	220
Discount	30	80
Interest	5	25
H. M. Jones, proprietor		21,312

Investigation of the accounting records and supporting data discloses the following:

1. A fire which occurred on December 20, 1920, resulted in the destruction of all the merchandise, the furniture and fixtures, and the building. The accounting records were saved by being in a safe. This safe is so badly damaged by the fire that it is not thought to be of any salable value. The lot on which the building stood is estimated to be worth $6,000.

2. The merchandise represented by Shipments Nos. 1 and 2 has all been sold and final accounting made therefor. No returns have been received from Shipment No. 3; it is valued at cost as shown in the trial balance. The term "shipment" here refers to merchandise which the owner has sent out to be sold on his account and risk.

3. An analysis of the merchandise account shows the following:

Inventory, December 1	$ 4,000
Purchases for December	15,760
Freight and cartage in	390
Sales to time of fire	11,150
Insurance received on stock lost by fire	3,000
Cost of goods destroyed by fire	8,000
Cost of goods shipped to commission merchants	2,700

The merchandise account has been credited with the cost of goods shipped to commission merchants and with cash received from the insurance company. You deem it desirable to set up a fire loss account which will be debited with the cost of goods destroyed and credited with the returns from insurance. This account will also be debited with the book value of all other assets destroyed and credited with returns from insurance. The balance will be transferred to profit and loss.

4. An analysis of the real estate account shows a debit for cost of $12,000 and a credit for insurance of $5,000.

Required

1. Make adjusting entries necessary: (*a*) to close the merchandise account and open accounts with the following: inventory, purchases, sales, freight and cartage in, fire loss; (*b*) to adjust the account with real estate; (*c*) to close furniture and fixtures into the fire loss account.

2. Prepare a balance sheet.

3. Prepare a statement of income and expense.

4. Make the closing entries.

5. Submit a memorandum explaining wherein you think the accounting records of the company are faulty.

REFERENCES FOR FURTHER STUDY

1. *Purchasing Agent*, February, March, and April, 1920.
2. Greenwood, *Industrial Management*, May, 1920.
3. Twyford, *Purchasing*, chaps. vii and viii.

CHAPTER XX

THE PURCHASING PROGRAM OF A MERCANTILE BUSINESS[1]

Relation of Purchasing Program to Sales Program

The amount of goods to be purchased by a merchant is determined primarily by his estimate of sales. Goods are purchased only to be sold, and sales can be consummated only when goods are available for sale. The general manager of a mercantile store is charged with a double responsibility—he must maintain such stocks of goods as will enable the store to fill orders for customers, and at the same time, he must avoid the accumulation of a stock which is beyond the sales demands. Inadequate stocks will cause loss of trade, and excessive stocks will result in loss due to inactive capital, obsolescence, and depreciation. The general manager can meet his responsibility only by anticipating sales demands and setting up as nearly as possible a schedule of deliveries to stock which will meet, but not exceed, these demands.

The first step in merchandise planning, therefore, is to determine the amount of future sales; the second step is to determine the amount of purchases necessary to meet these sales; and the third step is to set up a puchasing program which will result in the delivery of these purchases at the proper time and in the most economical quantities. The first step has been previously discussed. The second and third will be dealt with in this chapter.

Determination of Purchases Required

Estimating the purchases required by the sales program may be complicated by various factors. The difficulty of preparing

[1] The purchasing program of a mercantile business and the purchasing program of a manufacturing business are sufficiently different to make their separate treatment desirable. The latter is discussed in chapter xxvii.

such an estimate is dependent to a considerable degree on the number and nature of the commodities the business handles. If it deals in but one or two commodities and these are of standard make, the problem is not difficult. If the product is one which it is not necessary to deliver immediately after its sale, the problem is still further simplified. For example, a retailer of automobiles does not have a very difficult problem in planning his purchases. He keeps one or two cars of each model for exhibition purposes and when necessary orders cars for delivery after they are sold. Consequently he does not have the problem of large commitments in advance of sales. Similarly a retail dealer of cigars and cigarettes does not have a very difficult problem in controlling his inventory. Although he is required to carry several brands of each, these are in the main standard brands for which there is a consistent demand. Consequently he needs to carry but a small inventory and runs little risk of accumulating unsalable goods. It is claimed that one of the reasons for the success of the United Cigar Stores is that each store carries a very small inventory and has a very high rate of turnover.

On the other hand, in a large department store where thousands of items must be carried in stock, many of which are subject to frequent and rapid changes in style, the control of purchases is a difficult, but important problem. In fact, the importance of the problem usually increases in proportion to its difficulty. The problem of the department store is made more difficult by the fact that it must make commitments many months in advance of the dates of delivery. It must consequently base its estimate of purchases on a long-time sales estimate.

Because of these varieties of conditions, it is impossible to give any method of controlling purchases which will be applicable to all types of mercantile stores or even to all lines of merchandise handled by some stores. The present discussion will be restricted to outlining the principal factors which should be considered in controlling the purchases of typical lines of merchandise.

The ideal purchasing program from the point of view of the economical use of capital would be one which provided for the delivery to stock each day of the exact amount of merchandise to be sold that day. Such a program is not feasible for the following reasons:

1. In a mercantile store, it is necessary to have some merchandise on hand for display purposes. The customer desires an assortment from which to select his purchases. This necessitates the keeping on hand of a considerable quantity of merchandise. The amount which should be kept is dependent on the extent of the sizes, varieties, and grades of the merchandise kept for sale.

2. It is impossible to estimate sales demands or to plan purchase deliveries with sufficient accuracy to have the same amount delivered each day as is sold on that day. To provide against a failure to meet sales demands, it is necessary to keep some merchandise on hand.

3. It is usually not profitable to purchase in the small quantities necessitated by such a program. Small purchases result in higher buying expenses, and larger freight charges. They may also cause the loss of discounts which may be obtainable on large purchases. Furthermore, some firms purchase in advance of current needs when a shortage in supply or rising prices are anticipated.

It is necessary in all mercantile firms, therefore, to keep a quantity of merchandise on hand. One of the principal problems in merchandise planning is to ascertain the proper size of this inventory and to set up a buying program which will schedule deliveries to stock in such quantities and at such times as to provide for its maintenance at this amount. The control of inventories, therefore, is the starting-point for the control of purchases.

Methods of Controlling Inventories

The proper method of controlling inventories in a mercantile firm depends on the nature of the goods handled. Most firms need to use different methods for different classes of goods. The methods most frequently used are the following:

1. "Minimum" and "quantities to order" are established and when the inventory falls to the minimum an order is placed for the quantity to order. The minimum is set at an amount which is sufficient to meet sales needs until an order can be filled. In calculating sales needs, it is necessary to consider not only the amount needed to fill sales orders during the period intervening between the placing of a purchase order and the receipt of the goods, but also the goods needed for display during this period. This method of inventory control is practical for goods which are not subject to frequent style changes and for which there is a fairly constant demand. Kitchen equipment, hardware, and certain grades of shoes and hosiery are illustrations of this type of merchandise. Under this plan of inventory control, it is necessary to maintain perpetual inventory records in the manner discussed later in this chapter.

2. The "normal inventory" which it is desired to have at specific dates (usually on the first day of each month) is ascertained and a buying schedule established which will deliver sufficient stock during the intervening period to meet sales demands and maintain the normal inventory. For example, it may be decided that the normal inventory of article Y is 20 units on January 1 and 15 units on February 1. If the sales estimate calls for the sale of 40 units during January, 35 units should be delivered to stock during the month. This method of control is practical where only a few units of each product is carried in stock, and it is possible and profitable to purchase in small quantities. Furniture and standard styles of clothing fall within this group.

3. A maximum inventory in terms of value is established for each class of goods or for each department and the department head is responsible for controlling the purchases of his department so his inventory will not exceed the maximum. By frequent inspection of his stock he ascertains the amount on hand and plans his purchases accordingly. For example, the maximum inventory of the X Department may be established at $30,000. At least monthly inventories will be taken, and a report showing a comparison of the actual and normal inventory will be made for the use of the head of the department, the merchandise manager, and the other executives. This method of inventory control is the most inaccurate of the three we have discussed, but in the case of style goods such as millinery and ladies' ready-to-wear clothing it is the most practical method so far developed.

Determination of Minimum and Quantities to Order

The following factors should be considered in determining minimum and quantities to order:

1. The lapse of time between the placing of a purchase order and the delivery of goods. The length of this period (which we may call the purchase period) will vary for different commodities and will vary for the same commodity at different times of the business cycle. The minimum should be of sufficient amount to supply sales demands during the purchase period. The amount of sales during this period is obtained from the sales estimate. A small amount is usually added to the quantity thus arrived at as a margin of safety.

2. Relation of price to quantity purchased. In some lines of merchandise quantity discounts are offered, that is, a larger trade discount is given if a large quantity is purchased than if a small quantity is bought. The savings made by securing the larger discount may make it profitable to purchase in excess of present needs. Anticipated changes in prices may also affect

the quantity purchased. This is discussed later when the effect of merchandise policies on the purchasing program is considered.

3. Storage space. The cost of storage space may affect the quantity of inventory carried. This is most likely to be an important factor in the case of bulky articles. For example, automobile dealers find storage space for their inventory quite expensive. This is the more true because their place of business is necessarily located where space is costly.

4. Perishability. It is necessary to keep the inventory of perishable products as small as possible so that loss from deterioration will be as little as possible. Dealers in vegetables and fruits, for example, must keep their inventory small and replenish it frequently.

Determination of Normal Inventory by Use of Turnover Figures

The simplest method of determining the amount of the normal inventory is by the use of turnover figures. The procedure is as follows:

1. Ascertain the ratio of the average inventory of one or more past periods to the sales of those periods, that is, secure the merchandise turnover of those periods. In calculating merchandise turnover, it is important to remember that the inventory and sales must both be stated at the same price. If the inventory at cost price is divided into the sales at selling price an incorrect turnover is shown.

2. Apply the turnover of past periods to the estimated sales for the current period as shown by the sales estimate to obtain the average inventory for the current period. If sales are stated in terms of value, cost of sales should be used for this computation.

This method of determining normal inventory should be used with discretion. The inventory of past periods may have been too small or too large. The merchandise manager may know that in the case of many articles a much larger inventory was carried than was necessary to meet the volume of sales, and he estimates that a smaller inventory can be carried during the coming year and the same volume of sales be obtained. On the other hand, he may know of many articles of which the sales could have been increased, if a larger variety or assortment had been carried or if the goods desired by the customer had always been on hand when called for. He may rightly decide that the turnover of past periods must be modified before it can be used as a basis for calculating the average inventory for the current year.

It is usually unsafe to use average turnover, that is, the average turnover of all lines carried. The factors affecting different lines of goods are usually so dissimilar that it is only by calculating turnover on each class of merchandise that dependable statistics are obtained.

Methods of Ascertaining the Amount of Inventory

Under all methods of purchasing control, it is necessary to obtain the amount of the inventory at frequent intervals. Inventory statistics are necessary both in preparing merchandise plans and in controlling the plans made. They are also necessary for preparing the periodic financial statements, such as the balance sheet and statement of income and expense.

The customary methods of obtaining these statistics is by the use of

a) Perpetual inventories
b) Estimated inventories
c) Physical inventories
d) "Retail" inventories

Perpetual Inventories

A perpetual inventory requires the maintenance of a record with each article of goods carried in stock which will show the number of units purchased, the number sold or consumed, and the number on hand. Such records have come to be known as perpetual inventory records, stock records, stock ledgers, or balance of stores. The simplest form of a perpetual inventory record is shown in Chart XXIV.

CHART XXIV

INVENTORY RECORD

Item______X Article

Date	Received	Sold	Balance	Date	Received	Sold	Balance
1923							
4-1			12,500				
4-5		4,000	8,500				
4-15		1,000	7,500				
4-20		5,000	2,500				
5-1	10,000		12,500				

This record provides columns for showing: (*a*) "Date"—in this colum is recorded the date of each entry on the record; (*b*) "Received"—in this column is recorded the amount of the goods received into stock; (*c*) "Sold"—in this column is recorded the amount of goods sold; (*d*) "Balance"—in this column is recorded the amount of goods on hand which is obtained by subtracting the goods sold from the beginning balance and adding the receipts. This form of record will show the amount on hand at any particular time which is why it is termed a *perpetual* inventory record.

The inventory record may be kept in quantities only; in terms of value only, or in terms of both quantities and value. The terms in which it is kept will depend on the nature of the product and the nature of the information desired from the inventory records.

Perpetual inventory records are very useful for some lines of merchandise but they are not practical for other lines. For example, they can be used by a department store for its household utilities and shoe departments, but they cannot be used satisfactorily for its millinery or ladies' ready-to-wear departments. In the first-named departments, there are several units of a standard article on hand at all times and those sold are replaced by identical articles. Of course, some articles will be dropped and other articles added from time to time. This is especially true in the case of high-priced shoes which are more susceptible to style changes than the low-priced brands. In the last-named departments, each article on hand may be different from each other article and when an article is sold it will probably not be replaced by an identical article.

When perpetual inventory records can be used satisfactorily the problem of controlling inventory is usually simplified. Minimum and quantity to order can be worked out and entered on these records. When the record shows that the inventory has fallen to the minimum a request is made for the quantity to order. By this method the control of inventory becomes largely a matter of routine procedure.

Estimated Inventories

Many merchants who desire frequent inventories use estimated inventories for those lines of merchandise where it is not practical to use perpetual inventories. The estimated inventory is checked by a physical inventory once or twice a year. The estimated inventory is based on the formula that the actual inventory at the beginning of the period, plus purchases for the period, plus the estimated gross profit subtracted from the sales, equals the ending inventory. The method of arriving at this formula is seen easily by considering the trading section of the statement of income and expense.

The trading section of the statement of income and expense of the James Mercantile Company for the month of December is shown on page 431.

From the statement therein, it is possible to prepare the following equation: Sales minus Beginning Inventory minus Purchases minus Ending Inventory equals Gross Profit.

Ordinarily when a statement of income and expense is made, the only unknown quantity is the gross profit and it is obtained by this equation. When it is desired to use this formula for estimating the ending inventory, there are two unknown quantities: the ending inventory and the gross profit. One of these must be ascertained before the equation can be solved. This

CHART XXV

THE JAMES MERCANTILE COMPANY

STATEMENT OF INCOME AND EXPENSE FOR MONTH ENDED DECEMBER 31, 192__

Sales		$100,000.00
Inventory December 1	$30,000	
Purchases for month	60,000	
Total mdse. to account for	90,000	
Inventory December 31	20,000	
Cost of goods sold		70,000.00
Gross profit on sales		30,000.00

is accomplished by estimating the gross profit. To do this the ratio to sales of the average gross profit during the past periods is determined, and this percentage is applied to the sales of the current period to obtain the estimated gross profit for this period.

To illustrate, it is found that the average gross profit of the Brown Mercantile Company during the past three years has been 30 per cent of sales. It is thought that the average gross profit of these years is indicative of the profit of the month of December of the current year. By taking this percentage of the sales for this month, the estimated gross profit is calculated to be $30,000. By using this figure the equation given above can be stated as follows: $100,000 minus $30,000 minus $60,000 plus Ending Inventory equals $30,000. By transposition and solving, the Ending Inventory is determined to be $20,000. Since the gross profits on different lines of goods varies, it is necessary to perform the foregoing calculation for each line of goods if an accurate estimated inventory is to be obtained.

It should be evident that estimated inventories can be only approximately correct. If the merchandise manager has before him only estimated inventories at the close of each month or fiscal period, he must use his judgment in basing his actions on them. In any case frequent tests should be made to verify the accuracy of the estimate. Estimated inventories are of value not only in controlling the amount of purchases, but may also be used in preparing monthly statements of income and expense which will serve to indicate the profit trend. These statements must of course be used with judgment since they are based on estimates.

Physical Inventories

Physical inventories consist in taking an actual count of the goods on hand and the ascertainment of their value on the basis established for inventory valuation. Some firms rely on physical inventories entirely, and all firms use them to some extent. Even though perpetual or estimated inventories are used, they should be checked periodically by a physical inventory. It is almost impossible to maintain a perpetual inventory free from errors, and estimated inventories can usually be only approximately correct.

Some department stores take an inventory in some departments of the store every two weeks. Such a check-up at frequent intervals is especially desirable in the case of variety goods where fashion and styles play an important part. Practically all firms which maintain an accounting system take a physical inventory yearly and there is some tendency toward semiannual and quarterly inventories. It has been found that if a standardized procedure for the taking of inventories is properly worked out, it is not as great a task as it was formerly thought to be.

Retail Inventories

Retail firms have developed a method of taking inventory which is known as the retail method of inventory. The essence of this method can be stated briefly. A physical inventory is taken at sales price. The percentage of average mark-down is subtracted from the percentage of average mark-up and the resulting percentage applied to the inventory at sales price to obtain the average gross profit. The average gross profit, as thus ascertained, is subtracted from the inventory at sales price to obtain the final inventory. For example, the average mark-up on article X is 35 per cent and the average mark-down is 5 per cent, leaving a difference of 30 per cent. The inventory of article X at sales price is $30,000. The estimated gross profit on article X, then, is $9,000 and its inventory value is $21,000.

This method of inventory valuation is permitted for income tax purposes under present regulations. It is claimed that it is more convenient for retail stores than valuing inventories at cost or market, whichever is the lower. It is also claimed that it is the easiest way to show the effect of falling prices on the inventory, and is a conservative method of valuation since it automatically gives effect to all mark-downs made on goods either because of falling prices or excess or improper buying. It should be noticed, however, that if a firm follows the policy of marking up its sales price on all goods in stock as purchasing prices increase, this method will also result in taking these increases into the inventory. To do this is questionable to say the least.

Preparation of Buying Budget

The methods of controlling purchases vary so much that it is impossible to give a definite form of procedure for the preparation of the buying budget. The starting-point in all cases should be the sales estimate. It is the task of the buyers to supply the goods to meet the sales demands as shown by this estimate. The requirements of the sales estimate must be translated into a working program for those responsible for making purchase contracts. In the case of goods which are controlled by perpetual inventory records the sales requirements should be translated into terms of minimum and quantity to order for each record. In the case of bulky articles like pianos where only a few are kept in stock, a normal monthly inventory should be established and then a schedule can be prepared in the form of Chart XXVI.

CHART XXVI

SCHEDULE OF FINISHED GOODS DELIVERIES					
Month	Beginning Inventory	Sales	Ending Inventory	Deliveries to Stock	Memorandum
Jan. Feb. March etc.					

In the case of style and fashion goods, a maximum inventory based on the sales estimate is established for each line of goods, and the buyer is given authority to purchase the number of units he thinks necessary so long as the maximum inventory is not exceeded. In some stores a maximum is not established for each line of goods but only for each department. It is questionable whether this does not place too great a responsibility on the buyer. In any case the buyer must have for his use a detailed statement showing the approximate quantity of each line to be purchased and the dates when these purchases are to be made. A statement showing the dates of payment should be prepared for purposes of financial control.

Generally speaking the estimates of purchases like all other estimates should be prepared by those responsible for their execution. They should be transmitted through the line executives to the executive in charge of budgetary procedure and be transmitted by him to the budget committee.

Buying-Budget Control

The buying budget provides a working program for the current period. But this program is based on estimates and these estimates, however carefully made, may prove inaccurate because of market conditions which could not be foreseen at the time the estimates were made. If these estimates prove incorrect, it is necessary to change the plans based on them and these plans should be changed as soon as possible. If it is estimated that the sales for the current year will be 25 per cent more than for the past year, a buying budget will provide for a corresponding increase in purchases. But if at the end of the first month the sales have not increased and market conditions indicate that the anticipated increase will not materialize, it would be very unwise to continue to follow the original buying budget. It is necessary, therefore, to have records and reports showing a comparison between estimated sales and actual sales as well as estimated purchases and actual purchases. If these are properly made, they make possible a revision of the buying budget throughout the year, if the results of the year make such a revision necessary.

The method to be employed in the revision of the buying budget will depend on the form in which the budget is made, the manner in which the inventory is taken, and the method of purchase used.

If a perpetual inventory is kept, it will be necessary to revise the amount of the minimum and the quantities to order. After these revisions, the desired increase or decrease in the volume of purchases will be taken care of automatically by the operation of the inventory records. In the case of buying quotas stated in terms of value, it is only necessary to add or subtract the necessary amount to the original amount to arrive at a new normal. In a department store where there may be thousands of different items on which purchasing quotas have been established a revision of these quotas to meet changing trade conditions is a problem of considerable complexity. Perhaps the simplest way to make changes on numerous quotas is to compute the percentage that the delivery quota for the month is to the estimated sales for the month and apply this percentage to the estimated sales for the next month to secure the estimated delivery quota for that month. This percentage method does not give a quota which will result in the exact inventory which was originally planned but it is a useful method to employ when there are quotas on many items which must be revised to meet changing sales possibilities.

If buying quotas are to be effective it is necessary that the quotas established be enforced. To accomplish this it is necessary to have frequent reports showing a comparison between the actual and the estimated purchases. In most cases it is desirable that these reports be made monthly, but in some cases they should be made for briefer periods and in others they cannot be made effective for so short a period as a month. The form of these reports will depend on the method of control exercised over buying. In all cases they should be in such form that a comparison between the standard and actual can be quickly obtained.

Relation of Purchasing Budget to Merchandise Policies

The merchandise policies of a firm should be given careful consideration in the preparation of the purchasing program. A purchasing budget based on normal sales requirement does not always represent the best purchasing program. There are several considerations which may make modifications desirable. It is by means of these modifications that the *budget* is made over into a *program*. We can consider here only one or two of the most important of these considerations.

It may be desirable to purchase a large amount of stock early in the period because of an anticipated increase in price, or because it is anticipated that there may be congested traffic later. Consequently the purchasing program may call for purchases in excess of current sales needs. On the other hand it may be desirable to let the reserve stock fall below normal because of an anticipated fall in the market price. Such variations from the normal requirements should be made only after very careful and mature consideration and should be approved by both the budget committee and board of directors. Sometimes the buying executives desire to make changes in scheduled plans after the purchasing program is adapted. Permission for such variations should be granted sparingly. If these variations are freely permitted, the buying budget becomes ineffective as a control of buying operations. Some further consideration is given to this subject in chapter xxvii.

Contemplated changes in personnel of customers may affect both the quality and quantity of the goods to be purchased. If it is planned to sell to customers desiring a lower-priced grade of merchandise than that formerly handled it will probably be possible to increase the turnover and decrease the amount of inventory carried. For example, a large inflow of war workers into some localities during the war period increased the sale of certain grades of merchandise for those stores which served them. On these grades of goods the inventory did not increase as rapidly as sales, consequently the turnover was increased. On the other hand, an attempt to cater to a more fastidious trade may tend to necessitate a large inventory to provide the proper variety.

Some firms in adding new lines and styles buy only small quantities or samples and test out the demand before committing themselves to quantity purchases. Others purchase in large quantities in order to secure the effect of the display of a full line and trust to their sales force and advertising power to popularize and sell the quantities purchased. Some firms emphasize specialities and bargain sales, while others use these only when absolutely necessary. Some firms try to satisfy all the wishes of their customers, while others specialize on standard makes and sizes. All these variations in policies and many others must be given due consideration in the preparation of the purchasing program, so that it will reflect the aims and purposes of the management for which it is to serve as a control instrument.

Buying Expenses

The purchasing program calls for the expenditure of funds in payment for goods. The amount of this expenditure is shown by the purchasing budget which we have been discussing. In addition, expenditures are incurred in the administration of the program. These constitute buying expenses. These expenses are usually not of sufficient amount to affect decisions concerning the purchasing program. Nevertheless they should be placed under definite control. To this end a budget on buying expenses should be prepared. The method by which it is prepared and used will be considered in chapter xlv in the discussion of expense budgets.

Purchasing Procedure

A standard procedure for the performance of purchasing operations is necessary for their effective control. Typically the following steps are involved in such a procedure.

1. Determination of need. The need for purchases may be determined entirely by the inventory records. This is the usual procedure when perpetual inventory records are maintained, and minima and quantities to order are established. The need may be determined partly by the records and partly by the executives. This is the case when reports are made from the records showing the amount on hand and the executives are left to decide when the inventory should be replenished and in what quantities. This method is likely to be followed for style and fashion goods. Finally, the need may be determined entirely by the executives. This is the case in a new business which

has no records or data on which to base its plans and it also is the case when new lines of goods are being added.

2. Request for purchase. When it is decided that purchases are needed it is then necessary to request their purchase by those who have the authority to buy. In some cases the one responsible for buying is also the one responsible for determining the need. For example some buyers in a department store are responsible for deciding when additional goods are required.

3. If the request for purchase is approved, a purchase order should be issued. This order should be issued even though the purchase is made by oral conference.

4. Receipt of invoice and its verification as to terms, prices, etc.

5. Receipt of goods and their inspection and inventory.

6. Checking of goods received, as shown by report on goods received, against the invoice.

7. Entry of invoice in records.

8. Return of goods damaged or otherwise not up to requirements and proper entry therefor.

9. Placing of accepted goods in stock.

Illustration of Purchase-Order Procedure

The nature of the routine involved in handling purchases is indicated by the following procedure for handling purchase orders by a large mercantile firm:

No goods are purchased except on a written order signed by the merchandise manager and the buyer. When goods are purchased by telephone, telegraph, or personal visit of buyer, a confirming order is written and sent through in the regular way so that the purchase record will be complete. Such orders are stamped across the face, "Confirming Order," so that duplication of the original order will be prevented.

Purchase orders are prepared in triplicate. The original is sent to the vendor, the duplicate is sent to the accounting office, and the triplicate is retained by the buyer. A record of orders placed is made by the accounting office which shows the following:

1. A classification of the orders placed for delivery during each of the months (usually six) in the current season.

2. Total of all orders placed for delivery this season.

3. Total of all orders placed for delivery during the next season.

4. Total of all orders placed for both seasons.

All orders are entered in consecutive order and any missing numbers are immediately traced. Buyers are not permitted to retain duplicates. The record is inspected daily to see that all duplicates are being sent in.

When orders are canceled, a memorandum is made on a regular order form, and it is entered in the order record in red ink.

When an invoice is received, it is sent to the accounting office and checked against the duplicate copy of the order. If the invoice and the purchase order agree, the invoice is marked approved and sent to the receiving-room. The receiving-room is not permitted to unpack any merchandise until it receives the invoice approved by the accounting office. In this way, unauthorized purchases or deliveries are detected before the goods are unpacked.

After the receiving department unpacks the goods, they are inspected by the buyer or his representative, and if both quantity and quality are correct the invoice is approved and returned to the accounting department for entry. The accounting department vouchers the invoice, and on the proper date prepares a check for the signature of the treasurer.

QUESTIONS FOR CLASS DISCUSSION

1. Both the merchant and the manufacturer are confronted with the problem of maintaining a proper inventory of finished goods. In what ways is the problem the same for both and in what ways is it different?

2. Do you think merchants succeed in securing accurate co-ordination between their sales and purchases? What evidence can you present that shows many fail by a considerable margin to secure co-ordination?
3. Make a list of the factors which influence the size of the inventory carried by a department store.
4. Give methods of controlling inventories in a mercantile firm, illustrate the use of each, and give the advantages and disadvantages of each.
5. "The experience of merchants is that perpetual inventories are often expensive in their operation." Do you agree that this is true? If so, why?
6. Under what conditions may estimated inventories be used to advantage?
7. Explain and illustrate the retail method of valuing inventories. What advantages and disadvantages are there to this method? Why don't manufacturing firms follow a similar plan?
8. Outline a possible procedure for taking a physical inventory in a department store. Can you suggest any conditions under which it is not desirable to use "cost or market, whichever is the lower" in valuing the inventory?
9. What is the proper method of calculating merchandise turnover? Explain the uses of turnover figures. Suggest other turnover figures which are useful.
10. "If expenses and profits per sale remain the same, the greater the number of turnovers within a year, the greater the net profit." Do you think the expenses and profits will remain the same?
11. The manager of the X Department contends that he can make larger profits for his department if given a larger inventory. How can the merit of his contention be tested?
12. In the X Store, the buying budget is prepared by the controller. In the Y Store, it is prepared by the merchandise manager. What do you think of these methods?
13. The president of the X Department Store says, "I do not believe in the use of a buying budget. We let our buyers use their judgment concerning what to buy and in what quantities. If their judgment is poor we secure other buyers." What do you think of this plan?
14. The merchandise manager of the X Store states that he and his buyers make thousands of dollars for the store each year by watching price trends and buying large quantities of goods in advance of price increases. He contends that because of this practice the purchases of the store fluctuate to such an extent that a buying budget cannot be used effectively. What is your opinion?

15. "It may be said by way of caution that 'external' and 'internal' factors which affect the merchandise plan are closely related." Illustrate how this is true.
16. What is the significance of the following equation: Expense divided by [Mark-up—(mark-down plus profit)] equals Sales?
17. State the steps involved in a typical purchasing procedure and give the purpose of each.

EXERCISE NO. 34

The A. B. Company operates a department store with ten departments. There is a head of each department who supervises the buying and selling of his department. A merchandise manager has supervision of the buying and selling operations of all the departments.

The president acts as general manager and there is in addition a treasurer, controller, personnel manager, advertising manager, and operating superintendent.

Goods are purchased (*a*) by orders mailed to wholesalers and manufacturers, (*b*) from traveling representatives of vendors, (*c*) by the buyers of the store visiting the display rooms of vendors, and (*d*) by purchasing representatives located in the principal source markets. Goods are sold for cash and on monthly account.

Required

1. Prepare an organization chart for the company. You will supply any necessary information.
2. Show in outline form the complete procedure for preparing and executing the following budgets of the company: (*a*) sales; (*b*) selling expense; (*c*) buying. In this procedure state the responsibility for the preparation of each budget and report; explain the duties of each unit of the organization with reference to each budget and report. If you think alternate methods possible, outline these and give reasons for them.
3. Draft the forms which will be necessary in carrying out the program outlined in (2) and explain the use of each.
4. Explain the classifications of sales and purchases the company should have. State the purpose of each classification, and explain the method by which it will be maintained.
5. Outline a complete purchasing procedure for the company.
6. Draft a skeleton balance sheet and statement of income and expense for the company.

REFERENCES FOR FURTHER STUDY

1. Cramer, *Factory*, October, 1920.
2. Dean, *Industrial Management*, November, 1920.
3. Filene, *System*, December, 1923.

CHAPTER XXI

ORGANIZATION AND REPORTS FOR PURCHASING CONTROL

Organization for Purchasing Control

In most manufacturing firms, there is a central purchasing department responsible for the purchase of the materials, equipment, and supplies needed by all departments of the business. All purchases are made by means of a purchase order issued by this department. In mercantile firms a modification of this procedure is usually necessary. In a large department store, for example, there are special buyers for different lines of goods, and these buyers in many cases go to the market to select the goods they desire. Although the buyers may make their purchases personally by visiting the market, purchase orders should be issued in confirmation of these purchases, and these orders should be approved by the chief executive of the buying department. This provides a central control.

Firms differ in the extent to which they centralize their purchasing. The present tendency is toward centralization. In a manufacturing business having no branches, there is rarely any reason for not having all purchases made by a centralized purchasing department. This department should purchase not only the raw materials but also the equipment and supplies. If a business has branches, it is usually expedient to grant authority to the local manager to make limited purchases under the supervision of the central purchasing department. In a mercantile business, the actual buying is done by the departmental managers, but they are under the supervision of the merchandise manager. Even here the purchasing of supplies and equipment can be definitely centralized. In a small business, the owner usually keeps all buying in his hands or places it in the hands of an assistant working under his direct supervision.

In a manufacturing business, the head of the purchasing department is usually termed the "purchasing agent." He usually reports to the production manager or the general manager. The second method is to be preferred, for there is no logical reason why the purchasing function should be subordinate to the production function. They are by no means homogeneous. The objection to the second method is that it increases the number of executives reporting to the general manager, and there is usually a tendency in every business for this number to be too large. A more desirable form of organization is that which provides for a vice-president in charge of marketing to whom the sales manager, purchasing manager, and traffic manager report. Many firms are not of sufficient size to make this form of organization profitable. In a mercantile firm, there is usually an executive who has supervision, if not direct control, of all purchasing. The departmental buyers may purchase under the supervision of the central purchasing executive, usually known as merchandise manager, or the departmental heads may make known their needs to this executive, who is responsible for all purchases. For example, the former procedure is likely to be followed in a dry goods store where buyers must be specialists because of the variations in styles. The latter procedure may be followed in a grocery business where one executive may be able to become familiar with the requirements of all departments.

Subdivisions of Purchasing Department

The internal organization of the purchasing department will depend on the authority granted to the department, the volume of its operations, and the nature of the commodities it buys. One man can purchase a large volume if purchases be made in large lots or if the variety of articles purchased be small. One man can purchase more from the dollar and cents standpoint if he deals in coal only than if he buys for a chain of five-and-ten-cent stores. As the number of employees increase, the need for a classification of duties becomes necessary, and this classification usually results in the organization of the department on a functional basis.

A possible form of organization for the purchasing department of a manufacturing business is shown by the following outline:

1. The *purchasing agent*, who is responsible for the general management and supervision of his department. He formulates the policies of his department, and represents the department in negotiations with the other departments. A considerable part of his time is given to the negotiation of large orders and contracts.

2. The *assistant purchasing agent*, who performs the tasks delegated to him by the purchasing agent. His aim is to relieve the latter of as much routine as possible, so he can devote his time and attention to the major problems of the department. In the absence of the purchasing agent the assistant purchasing agent acts in his stead.

3. The *chief clerk*, who is responsible for the clerical work of the department. He handles the routine correspondence relating to bids, prices, etc., either direct or in the name of the assistant purchasing agent. In the absence of his two superior officers, he acts as head of the department.

4. The *price clerk*, who is responsible for maintaining accurate and up-to-date price records, verification of invoices (as to prices, terms, and nature of goods), and supervision of files.

5. *Clerical employees* and *stenographers*, who report to the chief clerk.

Operating Activities of Purchasing Department

In some firms, the purchasing department performs operating as well as service functions. In such cases it may have under its control the following:

1. Receiving—having to do with the receipt of goods from the transportation company; the verifying of the quantities received by count or measurement; and the reporting of the quantities received. In a manufacturing business this function is sometimes under the production manager. In a mercantile business it is frequently under the operating manager. In this text we assume that this function is under the line control of the traffic department. The controller should have functional control of the records and procedures required in its performance.

2. Inspection—having to do with the examination and testing of materials received to determine whether they correspond with the specifications of the purchasing order. In a manufacturing firm the purchasing manager and his assistants usually do not have sufficient technical training to do this work effectively. Moreover, it is useful to have a check on the purchases of the department by having an independent inspection of the goods bought. Some firms have an inspection department, while others delegate the work of inspection to the engineering department. In a mercantile store, the buyers are usually the only parties competent to inspect the merchandise purchased.

3. Traffic—having to do with the classification of shipments, determination and verification of freight rates, expediting transportation, and adjusting claims with transportation companies. We assume the existence of a traffic department which is responsible for this function. The traffic department may also have jurisdiction of receiving, storing, and transporting of materials.

4. Storage—having to do with the receiving of materials into the stockroom, care of the materials on hand, and delivery of the materials to shop on requisition or to transportation company on sales order. No arbitrary statement can be made concerning the responsibility for these activities. In a mercantile business finished goods are usually under the jurisdiction of the sales department. The same may be true in a manufacturing business; but, in many cases, they are under the control of the

production department until sold. Materials in transit may be under the jurisdiction of the traffic department, and materials in stock awaiting factory requisition are usually under the control of the production department. In some cases a materials control division is organized in the production department which has control of all materials both manufactured and unmanufactured. Some firms have a warehouse superintendent who has charge of storage and related activities, and reports directly to the general manager. Office supplies and equipment while in storage are under the control of the office manager.

Purchasing Reports

Previous chapters have shown that various kinds of information are necessary for the effective control of purchasing operations. Some of this information is needed by the head of the purchasing department and his assistants, while some of it is required by other executives whose activities are interrelated with the buying operations. In both cases, this information must be presented by a proper system of reports, if it is to be used most efficiently.

The reports needed under the varying conditions under which buying operations are carried on differ so widely that it is impossible to give an inclusive discussion of purchasing reports. The discussion of these reports is made more difficult by the fact that executives themselves have given much less attention to reports for this purpose than they have to reports for controlling sales and production activities. The following pages will discuss and illustrate reports which are typical of those needed for purchasing control in both manufacturing and mercantile firms.

Reports on Market and Trade Conditions

The information needed by the purchasing department concerning general market and trade conditions is quite similar to that needed on the same subject by the sales department.

Consequently, the statistical and research department can usually prepare some reports in duplicate for these departments. Each of the departments is interested in information which will enable it to judge the cycle trend, and co-ordination of the activities of the two departments is facilitated if they base their judgments on the same information presented in the same manner. The cycle trend may not affect the commodities purchased, however, in the same manner in which it affects the commodities sold. In a manufacturing business, the nature of the commodities may be entirely different, and, in a mercantile business, there is usually a lag between the movement of wholesale prices and the movement of retail prices. It may be necessary, therefore, for the statistical department to prepare special reports for the use of the purchasing department, showing the specific information it needs to judge the market in which it buys.

Moreover, the purchasing department may desire special studies carried on from time to time to ascertain information concerning specific products or concerning the effect of specific conditions on all its products. For example, one product purchased by a company in large quantities is imported. The purchasing agent has noticed a considerable variation in its price from period to period. At his request, the statistical department makes an investigation and prepares for him a report which shows that the imports are seasonal in amount, and that the prices fluctuate in harmony with the volume of imports. It further shows that, by going into the market during the months of maximum imports, a large-enough saving is indicated to more than pay for the increased investment and cost of storage. Moreover, by purchasing at such times a plentiful supply is assured. Many reports of a similar nature are needed by the purchasing department at irregular intervals. These reports may be made in various forms. Graphs accompanied by appropriate discussion in most cases afford the most effective method of presentation.

Report on Budget Plans

The purchasing executives, the general officers, and the board of directors desire reports showing the purchasing program. The form of these reports depends on the nature of the business, as well as the nature of the commodities to be purchased. We have seen (chap. xix) that different methods of controlling purchases must be used by a mercantile store depending on the nature of the merchandise. Still other methods are employed in a manufacturing firm (chap. xxvii). The method of control employed may affect the form of the report used to show purchasing plans. Where stock is controlled by means of perpetual inventory records operated under minimum and quantity to order limits, a much more detailed purchasing plan is possible than where the inventory is controlled only by the establishment of maximum inventories stated in terms of value. The general officers, however, are usually interested only in condensed reports which show the expected operations in total. Chart XXVII illustrates a form which gives much useful information. It gives information of value, not only in judging the advisability of the contemplated purchasing program, but also the advisability of the contemplated sales and financial programs. The following information can be obtained from this report:

1. The estimated deliveries to stock during each month. This can be checked against the same item on the schedule of deliveries to finished goods (see p. 434) to ascertain the accuracy of the amount.

2. The estimated orders to be placed during the month. This provides a check on the amount of orders placed for future delivery. This enables the executives to know the long-run plans of the merchandise or purchasing department, and they can curtail these plans if they decide this is necessary. It indicates to the treasurer the possible demand for funds for the payment of vendor's claims.

CHART XXVII

ESTIMATE OF PURCHASES DISBURSEMENTS

ITEMS	FIRST MONTH						SECOND MONTH						THIRD MONTH	
	Inventory at Beginning of Month	Estimated Deliveries to Stock during Month	Estimated Orders to be placed during Month	Estimated Inventory at End of Month	Estimated Cash Disbursements for Purchases made during Previous Month	Estimated Cash Disbursements for Purchases made during the Month	Inventory at Beginning of Month	Estimated Deliveries to Stock during Month	Estimated Orders to be placed during Month	Estimated Inventory at End of Month	Estimated Cash Disbursements for Purchases made during Previous Month	Estimated Cash Disbursements for Purchases made during the Month	Inventory at Beginning of Month	Estimated Cash Disbursements for Purchases made during the Month

3. It shows the estimated inventory at the end of the period. By comparing this with the inventory at the beginning of the period, it can be seen whether the purchasing program contemplates an increase in inventory. If so, the reason for this increase can be ascertained. It may be desirable for the inventory to be increased but it is well for the contemplated increase to be called to the attention of the budget committee for approval.

4. It shows the disbursements to be made during the month for purchases made during previous months. These are disbursements which presumably must be met, since the contracts are already made. This is useful information for the treasurer.

5. It shows the estimated disbursements for purchases made during the month. This amount is subject to change in case the estimated purchases are changed.

If this report is made to cover several months, it gives a long-time and comprehensive picture of the merchandise plans.

The merchandise plan of each department of a mercantile firm can be effectively presented for executive consideration by the use of a report made in the form shown in Chart XXVIII.

The information shown on this report is self-explanatory. It serves, not only as a basis for formulating plans, but can also be used as a means of checking their performance since it provides for a comparison of the estimated and the actual. If desired, sufficient space can be left in each section to show at the end of the month revisions for each of the following months.

It will be understood that this general report will be supplemented by a number of reports which give more detailed information. For example, a report showing the stock plan for each department may be made in the form of Chart XXIX (p. 453).

Reports for Controlling Purchasing Plans

Regular periodic reports should be made showing a comparison between the purchasing plans and the results accomplished. The form of these reports will depend largely on the form of the

CHART XXVIII

DEPT. 1

PRELIMINARY SIX MONTHS' PLANS

Period from Jan. 1, 1922 to July 1, 1922

RETAIL STOCK | RETAIL
On Hand at Beginning of Period ______ | Maximum Stock ______
Desired at End of Period ______ | Minimum Stock ______
Initial Mark-up Required | Mark-downs Allowed ______

MONTH	Jan.	Feb.	Mar.	Apr.	May	June	TOTAL
SALES: Last Year Estimated Result							
INVENTORY: Last Year Estimated Result							
TURNOVER: Last Year Estimated Result							
PURCHASES: Last Year Estimated Result							
MARK-DOWNS: Last Year Estimated Result							
EXPENSE: Last Year % Estimated % Result %							

REMARKS

CHART XXIX

WEEKLY PURCHASE REPORT

Week Ending

	Dept.	Allotments Based on Last Season's Business	Change in Allotments Due to Inc. or Dec. Sales	Allotments for Season	Purchases Made			Balance to Buy (Overbought)	Average Weekly
					Unfilled Orders	Goods Received	Total		
	Total								

original budget. A simple form of report is shown in Chart XXII (p. 398). The contents of this report is self-explanatory.

A more comprehensive report is shown in Chart XXX. The amounts given for each item or line of goods in the first money column is taken from the last revision of the sales budget. In columns (4) and (5) a comparison is given between the delivery to stock quota on each item and the estimated sales at cost for the item. The estimated sales are taken at cost, so a comparison can be made between sales at cost and purchase quotas at cost. In column (6) a percentage of the quota to sales at cost is shown for each item. The data for column (6) is the result of dividing estimated sales at cost into purchase quotas. The actual sales for the month shown in column (7) will be taken from the sales records for the month, the estimated gross profit being subtracted. The revised quotas given in column (8) may be made by applying the quota percentage given in column (6) to actual sales at cost as given in column (7). The amount of deliveries into finished stock, as shown in column (9), will be taken from the purchase accounts or the inventory records. The orders outstanding, as shown in column (11), will be taken from an order register if a book record of orders is maintained, or they may be found by adding the unfilled orders on file.

Reports on Turnover

Merchandise turnover is so significant in merchandise control that it is well to have one or more reports which bring it forcefully to the attention of executives. A simple form of report which shows turnover in terms of "days to sell" is given in Chart XXXI (p. 456). Another form of report which serves this purpose is shown in Chart XXI (see p. 396).

Reports on Buying Expense

The purchasing department should prepare for its own use and the use of the budget committee an estimate of buying

CHART XXX

MONTHLY REPORT ON PURCHASES BUDGET

ITEMS	Estimated Sales for Month	Less Gross Profit Estimated	Estimated Sales for Month at Cost	Purchase Quota for Month	Per Cent of Quota to Sales at Cost	Actual Sales for Month Less Gross Profit	Revised Quota	Delivered to Stock during Month (Taken from Purchase Account)	Balance in Quota Not Delivered or Excess Delivered over Quota	Purchase Orders Outstanding under Quota Not Delivered	Balance in Quota Not Ordered or Excess of Ordered over Quota
(1)	(2)	(3)	(4)	(5)	(6) Per Cent of (5) to (4)	(7)	(8) Per Cent in (6) to Actual Sales in (7)	(9)	(10)	(11)	(12)

CHART XXXI

WEEKLY STOCK STATEMENT					
					WEEK ENDED JAN. 7, 1924
	STOCK ON HAND		INCREASE (RED)	DAYS TO SELL	
DEPT.	This Year	Last Year	Decrease (Black)	This Year	Last Year
Total					

expense which becomes the budget on buying expense when approved by the Budget Committee and board of directors. At the end of each month a report should be made showing a comparison between the estimated and actual expenses for the month. The form of reports suitable for these purposes is illustrated in chapter xlv.

Reports Necessary for Carrying Out Buying Procedure

It is necessary that information be transmitted from the various departments to the buying department, and vice versa, in the performance of the purchasing procedure. The nature of this information and the method by which it is transferred differ widely. The type of business and the form of procedure employed for controlling its buying operations are important factors. The purchasing procedure and the reports needed for its control differ to a considerable degree in a mercantile business and a manufacturing business. The more typical reports used for this purpose are the following:

1. A report to the purchasing department or departmental buyer giving notice that a replenishment of stock is necessary. In a mercantile firm, the buyer may obtain this information by a report from the stock clerks, from the bi-weekly inventory, or from reports made by the section heads. In a manufacturing business, the purchasing agent receives a purchase requisition which contains substantially the information shown in Chart XXXII. This requisition is prepared in duplicate by the department requesting the purchase, and one copy is retained for its files. In response to the purchase requisition, the buyer or purchasing agent issues a purchase order to the vendor. The form of a purchase order is shown in Chart XXXIII (p. 459).

2. A report by the purchasing department to the requisitioning department that its requisition has been honored. A copy of the purchase order usually serves this purpose.

CHART XXXII

PURCHASE REQUISITION

To________________ No.________________

Purchasing Agent

Please Order the Following Articles: ________________ 1924____

	For the Use of		Quantity	Description	Date Wanted	Date Ordered	Purchase Order No.
	Dept.	Order No.					

Approved________________ Signed________________

CHART XXXIII

X. Y. Z COMPANY
CHICAGO

No.__________

__________192___

PURCHASE ORDER

To__________ Ship to__________

Address__________ Address__________

Terms__________ Via__________

Place our Order No. on all Invoices and Packages. Send Duplicate Invoices for each Shipment.

To Be Shipped On or Before	Description	Quantity	Rate

CHART XXXIV

REPORT OF MATERIAL RECEIVED

Purchase Order No.______ No.______

Name______ ______192__

	Article		
	Lot No.	Description	Quantity

RECEIVED BY ______ ENTERED BY ______

3. A report from the receiving department to the purchasing department that the goods have been received. A "Material Received Report," in the form of Chart XXXIV, serves this purpose.

4. A report by the purchasing department to the accounting department that the goods have been received in accordance with the terms and conditions of the purchasing order. The approved invoice usually serves this purpose.

These reports are needed under the very simplest form of purchasing procedure. Under some conditions many other reports are necessary. All the various forms used in the buying process are in essence reports.

QUESTIONS FOR CLASS DISCUSSION

1. Illustrate the difference between the organization for purchasing control in a mercantile and in a manufacturing business. What is the reason for this difference? What are the advantages and disadvantages of the typical form of organization used in the two cases?
2. What reasons can you give for the present tendency toward the centralization of purchasing control?
3. How do you explain the tendency to place the purchasing agent under the jurisdiction of the production manager? What advantages and disadvantages do you see in this plan?
4. Outline the internal organization of the "buying department" of a mercantile firm.
5. What are the advantages and disadvantages of having the purchasing department in control of operating activities? Are these activities most likely to be placed under the control of the buying organization in a mercantile or a manufacturing firm? Why?
6. "The reports needed by the buying executives of a mercantile business differ, in some respects, from the reports needed by the buying executives of a manufacturing business." Why is this true? Illustrate points of difference and points of similarity between the two kinds of reports.
7. The merchandise manager of the X Department Store says: "I want my buyers to study their customers and their goods, not reports." What do you think he has in mind? Do you agree?
8. "The number and nature of the reports needed by the buying executives depend on the personality of these executives." What does this mean? Do you agree?

9. "The purchasing manager needs fewer reports than any of the other executives, for his work is primarily a matter of routine." Do you agree? Is this more true of a purchasing agent of a manufacturing firm or a buyer in a department store?
10. "In our business the purchasing operations of each period differ so widely that reports giving information concerning the past are of no benefit in planning the future." Do you agree? What kind of a business do you think the writer has in mind?
11. "The purchasing department may desire special studies carried on from time to time to ascertain information concerning specific products." Give illustrations of such reports. Who should be responsible for their preparation?
12. Do you think the method of revising purchase quotas provided for in Chart XXX gives accurate results? If not, how can the use of this method be justified?
13. Suggest reports not discussed in this chapter which you think would be useful in specific cases.
14. In what way do the reports used in the purchasing procedure of a mercantile establishment differ from those employed in a manufacturing business?
15. "There are a great variety of instructions and conditions which may be placed on the purchase order." Give some of these, and state their purpose.

EXERCISE NO. 35

The Reliable Department Store was organized fifty years ago, and has grown from a small general store to a modern department store with sales of $10,000,000 a year. The company expanded very rapidly during the period from 1915 to 1919. It had large inventories on hand when the depression came in 1920. Its statement of income and expense for the year ending December 31, 1920, showed a substantial loss. This was the only year in the history of the company that a profit had not been made. The company was heavily indebted to banks at the end of 1920, and most of its notes to banks were renewed during 1921 because of its inability to pay. The banks "carried" the company throughout the year because it had been regarded as an excellent credit risk for many years. But when its statement of income and expense for the year 1921 showed a very large loss, and its balance sheet of December 31, 1921, showed an inventory larger than the balance sheet of a year previous, the bankers became uneasy. They organized a committee to investigate the company. This committee found that the president of the company was a man seventy-five years of age who had been president since the death of his father (the founder of the store) forty years before. The committee decided that a younger and more progressive executive should be president. Consequently, it recommended that the banks refuse to renew the loans of the company unless the company would select a new president, to be approved by the committee. The company agreed to this plan, and the vice-president of a competing company was made president.

The new president found that prior to this time the company had given little thought to organization problems. Most of the employees of executive rank had been with the company for a great many years, and a very informal relationship existed between them. Lines of authority were not definitely fixed, and administrative procedures were not standardized. Few reports were used by the executives, and few if any administrative standards were established. The new president decides that a more centralized form of organization is necessary, and that the company has grown to the size where formal methods of control should be employed. Accordingly, he employs an accountant who is also experienced in the administration and organization of mercantile establishments to be controller of the company. He instructs him to make a thorough investigation of the company, and make recommendations for changes. Since the company had suffered severe losses because of excessive inventories during the past two years, he requests the controller to give special attention to methods of controlling purchases.

The controller finds the following conditions:

1. The selling and buying force is organized into departments and the head of each department is responsible for both the purchases and sales of his department. In general, the department buyer is given a free hand in deciding when and in what quantities to buy. When he is planning a trip to the market he discusses his contemplated purchases with the merchandise manager, but the latter limits his control largely to giving advice. The buyers have all been promoted from the ranks of their department and the executives contend that buyers selected in this manner know better than anyone else the needs of their departments.

2. Buyers keep such records as they desire for their use. No information is given to them by the accounting department except a yearly balance sheet and statement of income and expense. The departments make no reports to the merchandise manager or other executives, and the only information they receive is a monthly statement from the accounting department showing the sales of each department and a yearly statement showing inventories by departments.

3. The treasurer has no information concerning purchases made, and does not know the funds required until the purchase invoices are received.

4. All mark-downs are taken on the buyer's judgment without the approval of merchandise manager. Special leaders may be featured by the buyers without superior authority. In the case of special sales, the merchandise manager is consulted, and he attempts to schedule these so those of the different departments will not conflict. Some buyers are accustomed to mark down their goods very liberally, while others mark down their goods sparingly.

5. The department heads select their employees, and decide on their rate of compensation. No standards have been established for salaries or any other expenses.

6. Each department head is responsible for the advertising of his department. The advertising manager assists him in preparing copy, and advises him concerning what advertising he should do, but the final decision as to quantity and nature of the advertising to be done for his department rests with the buyer.

Required

Assuming yourself in the position of the controller, prepare a report for the president discussing the following:

1. Your objections to the present method of controlling purchases, inventories, and expense, and the methods you think should be used.

2. The reports needed by (*a*) buyers, (*b*) president, (*c*) committee of bankers. Indicate concretely the contents and purpose of each report you recommend.

REFERENCES FOR FURTHER STUDY

1. Hatchin, *Making More Money in Store-Keeping*, chap. xv.
2. Basset, *Organization of Modern Business*, chap. xi.
3. Galloway, *Factory and Office Administration*, chap. xxv.

PART VI

TRAFFIC CONTROL

CHAPTER XXII[1]

THE OPERATIONS AND ORGANIZATION OF A TRAFFIC DEPARTMENT

Importance of Transportation to the Business Organization

The importance of transportation in the present-day economic system is shown (1) by the relation of transportation costs to the value of the products sold, and (2) by the dependence of the activities of the business as a whole on efficient transportation.

The transportation costs of many commodities constitute an important part of their market value. The freight charges on coal frequently equal the cost of coal at the mine, where a long haul is involved. The transportation costs of fruits and vegetables are often equal to one-third of their market price. These are extreme cases, but the fact remains that in the case of nearly all articles, transportation costs on the materials inbound, and the products outbound, constitute a significant part of their value.

The importance of transportation is keenly felt by the shipper when the carrier's facilities prove inadequate to the task of carrying promptly all traffic offered. The purchasing department perhaps has ordered the goods, but they cannot be delivered; the sales department has sold the goods, but they cannot be shipped. When the transportation machine slows down, goods cannot be delivered as quickly as formerly; and since goods are in transit longer, the finance department must arrange to finance the merchandise for a longer period of time. The consignee can hardly be required to pay for the goods before he receives them. If they are delayed in transit, obviously the burden of financing is increased. When needed supplies are delayed, the

[1] Chapters xxii and xxiii are adapted by permission from an unpublished manuscript by L. C. Sorrell.

production department may find itself forced to curtail operations; and, therefore, production costs are likely to be increased. It is evident, therefore, that the efficient working of each of the major departments of a business organization depends upon the proper functioning of the transportation machinery.

Need for a Traffic Department

The shipper, in purchasing or himself performing a transportation service, must face a complicated and technical situation. In many firms this situation is sufficiently complex, and its proper handling is of sufficient importance to make it profitable to establish a separate department for the administration of traffic problems. A few illustrations of the problems arising in traffic administration will serve to substantiate this statement.

If attention is confined to railroad transportation only, there is first to be considered the different types of service offered by the carrier to the shipper. The railroad, under certain conditions and at certain places, may allow the shipper to store goods "in transit"; i.e., stop the shipment at some point intermediate between origin and ultimate destination points, store the merchandise for a limited time, and then finish the journey to final destination, applying the through rate[1] from origin point to final destination, just as though no interruption had taken place. Thus a shipper of cheese from some Wisconsin point may store cheese at, say, Hornell, New York, and send it into New York City, when the market is favorable. The product is thus located near the consuming market, and at the same time avoids the

[1] This may seem a puzzle to readers familiar only with passenger fares, which are usually on a mileage basis. Freight rates are constructed differently. Suppose points x–y–z, x being origin, z destination, and y intermediate. Suppose on a given article that the rate x–y is 15 cents per 100 pounds, from y–z it is 18 cents. The sum of these is known as the "sum of the intermediates"; i.e., sum of the rates to and from the intermediate point. But, quite likely, the through rate would be less than 33 cents, perhaps as low as 22 cents. If so, the advantage to the shipper of a privilege which allows him to stop his commodity at y, then finish journey to z, and yet pay only 22 cents, is apparent.

high storage costs of the large city. And the rate applicable is the through rate from the Wisconsin shipping point to New York City, plus a moderate charge for the privilege of "storing in transit." This service may be a valuable one to the shipper; but it is not one that the railroad is required to grant, and it does usually grant it only under certain conditions. Or wheat may be shipped from western states to, say, Buffalo, there ground into flour, and the flour shipped to final destination, just as though it had originated at the western origin point of the grain. This is known as the "milling in transit privilege," and it, too, is accorded only under certain conditions. Or the shipper may ship a carload of eggs from Iowa to Chicago; while the goods are in transit, he may think the Boston market is better, and desire therefore to send that car on to Boston. The carrier will permit this, and take the eggs on from Chicago to Boston just as though the shipper had originally consigned them from the Iowa origin point to Boston. This is known as the reconsignment privilege, and it is granted subject to various conditions. A score of others might be mentioned; but these three will serve to emphasize the fact that the railroad offers different services to the shipper, upon various conditions; and the shipper must not only know what these services are, but also when and where they are available, and under what conditions they are performed.

Again, the shipper must understand the requirements of his product while undergoing transportation. Some products require heater service, some ventilation only, some refrigeration at moderate temperature, some refrigeration at low temperatures; some products, as, e.g., live stock, require considerable attention in transit; others, like agricultural implements, may require no particular care, but if they do not arrive promptly, may not be sold, and must be carried over until the next year. Some products can be handled in bulk, and on open cars; others must be packaged, or "knocked down," and carefully loaded in the car. If the product, like an automobile, is not disassembled, the transportation costs will be too high; if the product is disassembled too completely, the cost of reassembly will be too great. Increased transportation costs, in such a case, must be balanced against disassembly and reassembly costs. The shipper should purchase just the kind of transportation service his commodity requires.

The shipper must be familiar with the conditions imposed by the carriers upon the acceptance of commodities for transportation. The carriers all prescribe certain conditions regarding the packing and marking of goods, the type of container acceptable, the tensile strength of the material. The penalty for failure to comply with these rules may be either refusal to accept for carriage, as in the case of explosives and other dangerous articles, or an increased cost of transportation. Thus, should the carrier rate a certain article as packed in boxes, and the shipper should offer the same article in crates, no rating on that article in crates being provided, the shipper would be compelled to pay a higher rate. These rules are quite lengthy and technical; they are designed to reduce the chances of loss or damage in shipment; and they benefit both the carrier and the shipper.

There is probably no more technical situation facing the shipper than the mode of publishing rates. Speaking generally, at least two books must be consulted to ascertain the rates on a given shipment. These two books are known as the *Classification*, and the *Tariff*.[1] The *Classification* is a grouping of commodities regarded as substantially similar from a transportation standpoint. The *Tariff* is a book naming the rates in cents per 100 pounds on the "classes" in the classification. That is, instead of naming a rate on every conceivable article, hundreds of articles are grouped in classes; and the tariff then names the rate on the classes. Hence, both must be consulted to ascertain the rate on any given shipment. This would not be so difficult

[1] The reader will not confuse the term *Tariff* with the "protective tariff." The latter means customs duties; the former means a book containing railway charges. There is no connection whatever between the two.

if every shipment moved under the same classification, and if all the rates were to be found in one tariff. Such a happy condition does not exist. There are three interstate classifications: one known as "Official," applying east of the Mississippi and north of the Ohio rivers; the "Southern," applying south of the Ohio and east of the Mississippi; the "Western," applying west of the Mississippi. Furthermore, quite a number of the states have classifications applying on traffic moving wholly within their borders. Then, too, there are literally thousands of tariffs naming rates. Furthermore, many shipments do not come under class rates at all. They have special tariffs of their own, termed "Commodity Tariffs," naming rates on specified articles between specified points. When such "commodity rates" exist, they usually take precedence over the "class rates." The shipper, therefore, is under a legal obligation to know the rate; and to do this he must select out from among thousands of "tariffs" the particular one naming the rate on his particular shipment. Here, then, is a situation full of technicalities, with which only the specialist is fitted to deal.

Services a Traffic Department Can Render a Business Organization

The requisites for controlling traffic operations can be indicated effectively by discussing the services a traffic department can render to other departments. The most significant of these services are the following:

1. It can give information regarding rates to the purchasing and sales departments. The purchasing department may contemplate securing supplies from several possible sources. To determine which offer shall be accepted it is necessary to ascertain the freight rates from the several supply points to the factory. Such information is of equal value to sales departments when a firm chooses to quote prices to customers on a delivered-at-destination basis, for it is clear that the freight rate is a material element in the price. Not only the general sales office but also

salesmen and branch offices require such information. Some traffic departments issue rate cards to salesmen, showing the rates on their products to the principal points in their territory; and also showing the rates to those points enjoyed by competing concerns. This enables the salesman not only to tell the customer the cost of goods delivered to his town, but also to know whether a stated price of a competitor that seems to be lower actually is lower.

2. It can keep itself informed of changes or proposed changes in rates and service, calculate their probable effect upon the particular business, and oppose those conceived to be detrimental. It should keep the purchasing and sales departments informed concerning such changes, actual or proposed. Changes in rates and services are of daily occurrence; some may concern a particular firm and others will not. The number of these changes is so great that neither the purchasing nor sales departments can keep informed concerning them.

3. The traffic department can aid sales and purchasing departments by securing as advantageous rates as possible to or from the market, or at least rates as favorable as their competitors enjoy. To accomplish this they must present their case to the proper railroad traffic officials. Thus, firm E, located on the Monon in the "Stone district," produces stone. It is a low-grade product, and cannot bear a high rate. The firm hears that the federal government is to build a breakwater in Mobile Harbor, and will need many carloads of stone such as this firm can furnish. But the existing rates on that long haul of stone are so high that the firm cannot possibly hope to meet the bids of competitors much nearer Mobile. Therefore, the traffic department of firm E goes to the traffic department of the Monon Railroad and states the facts. They virtually say: "Here is a possible order for many carloads of stone; we believe we can get the order, providing you can give us a through rate to Mobile of say $4.20 per ton." The Monon consults its connecting line, the Louis-

ville and Nashville Railroad. If the carriers agree that here is worthwhile traffic which they cannot otherwise secure, they will publish a special commodity rate on stone from points on the Monon to Mobile; and the firm will thus be in a better position to secure the order.

4. The preceding case involves negotiation between carrier and shipper only. This is oftentimes called "voluntary-rate legislation." The action, if it results at all, results because shipper and carrier both conceive that the proposed change will be beneficial to both. But the carriers may not be favorable to the proposed change. In that event, the traffic department may appeal to the involuntary-rate legislation machinery, namely, the State Railroad Commissioners, or the Interstate Commerce Commission. The traffic department should take such action whenever it is convinced that some rate or rule of the carrier unduly discriminates against its company and favors its competitors, that the rate or rule is unreasonable, and that the carrier is unable or unwilling to remove the discrimination.

5. It can aid purchasing, sales, and production departments by securing its firm's share of freight cars, to insure at least equal treatment with other firms in access to the market. It should suggest and supervise the carrying out of methods to conserve the car supply, and secure the maximum use of the limited supply. At the peak load of the demand for transportation, the equipment of the various railroads of the United States usually proves inadequate to the demand. At such times the shipper who can assure shipments to customers will have an advantage over competitors. The traffic department should make all possible efforts to secure the maximum amount of equipment for its firm. In addition, it should see that each kind of equipment secured is used for the purpose for which it is best adapted and to the fullest extent of its capacity.

6. Effective aid can be rendered sales, purchasing, and production departments by tracing the movements of especially

urgent shipments, in order that the same may not be unduly delayed. This may be of value in providing information to customers concerning goods shipped to them, or information to purchasing or production department concerning goods purchased and urgently needed.

7. The traffic department should purchase the right kind of transportation service required by the commodity sold and the market in which the firm sells. In doing this it should aim to spend neither more nor less than necessary to secure the needed result. In general, the speediest service is the express, but it is also the most expensive. Water transportation is usually cheap, but slow. Rail freight transportation occupies an intermediate position. When a given shipment has been delayed or lost, to preserve the customer's good-will, it may be necessary to employ the express service to replace the shipment, although such a shipment would usually move by freight. Ordinarily, such determinations cannot be made by the traffic department alone, because it is not so familiar with the market conditions and the customer's needs as the sales department is. Hence conference with the sales department will be necessary, and the traffic department should purchase the kind of transportation that the sales department deems necessary. But the traffic department should, nevertheless, strive to keep such excessive expenditures to the minimum, using freight instead of express, substituting water for rail transportation, where possible without losing the market. Thus the total outlay for transportation will be reduced, and the net profits from the selling operations will be increased.

8. Further assistance can be given sales and purchasing by prosecuting claims against carriers for lost or damaged shipments. The law imposes upon carriers by rail an extraordinary liability for the safety of the goods they transport. Like everyone else, carriers are liable for loss or damage arising through their own negligence. But they are also liable for loss or damage even

where no negligence is shown, unless the loss or damage is caused "by the act of God, the public enemy, the authority of the law, or the act or default of the owner or shipper, or for natural shrinkage." That is, suppose a car is wrecked, and merchandise is damaged; that there is no proof whatever of negligence on the carrier's part; nevertheless, the carrier is liable. In such an event, the shipper will be required to replace the broken article, or make a new shipment to replace the lost one. The shipper will do this in order to preserve the customer's good-will; and the shipper, therefore, must recover this loss from the railroad.

But even in cases where the shipper declines to assume responsibility, and charges the customer for the broken or lost article replaced, it may still be necessary for the shipper to handle the claim. Some firms indeed do refuse to handle such claims, holding that the customer himself should recover from the carrier directly. But other firms hold that this is a subject that involves customer good-will; and that the shipper should undertake to recover from the railroad for the customer. In that case, by prosecuting the claim the traffic department is assisting the sales department in maintaining customer good-will.

The activities of the traffic department in this direction go beyond this. It is not sufficient merely to prosecute claims after they arise, important as this may be; it is better to prevent claims from ever arising. A claim for loss or damage is never an agreeable thing, either to shipper, customer, or carrier. The customer is irritated because the article must be repaired or replaced before it can be used. The shipper is annoyed because of the customer's complaint, because of the possible loss of his good-will, and because expense will be incurred in investigating and prosecuting the claim. The shipper must recompense the customer (i.e., feels he must pay the customer in order to retain good-will) at once, but it may be months before the sum is recovered from the carrier. A claim means more work for the carrier because it is required by law to investigate claims before payment. Such investigations are likely to be tedious, and involve considerable expense. Therefore, the best claims work is prevention. This means that the goods must be so packed that the danger of loss or damage will be reduced to the minimum; that shipments shall be so loaded into the car so that chance of damage while the car is in motion will be reduced; that car doors are properly sealed, and packages properly constructed, so that danger of theft taking place without external indications will be diminished; that perishable products shall be so protected by heater or refrigerator service that spoilage is kept at a minimum. Therefore, by supervising the performance of packaging, loading, sealing, unloading, and protecting the shipments, the traffic department can improve relations between shipper, customer, and carrier.

9. Traffic should aid sales and production departments by suggesting proper locations for branch houses, branch warehouses, and branch factories. The number of considerations involved in the selection of locations is quite large; but two very important ones are the nearness to the source of materials, and nearness to the market for the finished product. Now, nearness means not merely physical distance, but available transportation service at a low cost. Thus, for goods that can move by water, in terms of transportation cost, San Francisco is nearer New York than Denver is. The traffic department can render valuable service in selecting locations, so far as transportation costs are concerned.

10. The purchase of transportation for various employees of the firms also constitutes a method of saving money and reducing expenses. This is likely to be important only for large firms.

Organization of the Traffic Department—Its Relation to the General Organization

Traffic departments as such are comparatively recent developments of business organization. It is probable that the majority of them have come into existence in the last thirty years. The beginnings of the traffic department are to be found in the "shipping clerk," whose duties consisted mainly in preparing documents involved in making the shipment, checking inbound shipments, securing cars as needed, and perhaps passing the expense bills for payment. As his duties increased and he assumed some or all of the responsibilities outlined in the preceding chapter, he was promoted from a very subordinate position to the more important position of traffic manager.

Because of the recent development of the traffic department, executives have not given much thought to its relation to the other departments, and consequently its position in the organization varies widely. The following situations are typical:

1. The traffic department is independent of other departments, and its head reports directly to the general manager. In this case, the traffic manager is recognized as one of the major executives of the business. Most firms do not follow this plan.

2. The traffic department is subordinate to the sales department. This situation is likely to exist when the major traffic problems are in connection with outgoing shipments.

3. The traffic department is subordinate to the purchasing department. This situation is likely to exist when the major traffic problems are in connection with incoming shipments.

4. The traffic department is under the office manager. This situation is likely to exist when the traffic department is concerned largely with the clerical routine involved in handling transportation documents, and is not functioning as an operating department.

5. The traffic department is under an operating manager or superintendent of operations. This situation is likely to exist where the traffic department is an operating department, and has under its jurisdiction receiving, storing, packing, and shipping.

6. The sales manager, purchasing manager, and traffic manager report to a vice-president in charge of marketing. The

purchasing and sales departments are those most frequently served by the traffic department. This is shown quite clearly by the enumeration of the services rendered by the traffic department. It is quite logical, therefore, to combine sales, purchases, and traffic to form the division of marketing. This is the form of organization outlined in chapter iii. There are many small firms, however, which cannot profitably have such an organization, and it is then proper to follow one of the plans stated in 1 to 5.

Relation of Traffic Department to Other Departments

The number of departments with which the traffic department comes in contact depends upon the size of the business and the extent to which specialization is carried in its organization. A small business may combine in one department all the loading, unloading, packing, receiving, and shipping operations; whereas, a very large firm may spread these operations among as many different departments. Consequently, the traffic department of a large firm has contacts with more departments than the traffic department of a small firm.

The relations between the traffic department and such departments as packing, shipping, receiving, loading, and unloading are very close. Some firms, indeed, place all of these activities under the direct control of the traffic manager. In other cases, the traffic manager supervises their operations, but they are actually responsible to some other official. For illustrative purposes, we will discuss the relation of the traffic department to shipping and receiving.

The activities of shipping departments may be divided into two classes, namely, those involved in the physical handling of the goods themselves, and those involved in the preparation of the necessary shipping documents and records. The former includes packing and marking the articles for shipment, trucking same to the vehicles, and loading into the cars. The documents involved are the bill of lading in case of freight shipments, express receipt, if shipped by express, and delivery ticket, if trucked to destination. Small concerns and even many large ones place all the operations involved in the physical handling of the goods under one department head. But when a plant covers many acres, and produces many different commodities, it is preferable to have several loading points, since goods may be produced and stored at many different points. Nevertheless, the work of preparing the shipping documents may still be performed in one centralized department. Here, then, different departments pack, load, and "bill" the shipment. Packing and marking will be performed in the several production and storage departments, loading operations will be performed at the loading platforms under a different head, and documents for shipping will be prepared in the billing department.

The traffic department supervises all these activities. The carriers prescribe certain packing requirements; the traffic department must see that the packing departments pack and mark the shipments as required by the carriers. In preparing the bill of lading, the billing department must indicate the routing, unless the shipper leaves this decision to the carrier; and it must correctly describe the shipment on the bill of lading in accordance with the classification. Some firms also insert the rate applicable to the shipment on the bill of lading. Where this policy is pursued, the traffic department must furnish not only the route for the shipment but the governing rate as well. Again, unless the shipments are properly loaded in the car and the car properly sealed, loss or damage may result. The traffic department should supervise the loading operations to insure that the car is properly loaded and sealed before delivery to the carrier.

The physical work of the receiving department like that of the shipping department may be centralized or distributed at several points. The "paper work" involved is usually centralized as far as possible. The traffic department is especially interested in the following activities of the receiving department: (1) When a shipment of less-than-carload freight is received from the carrier, and there is apparent loss or damage, notations of such loss or damage should be made on the expense bill at the time of receiving the goods. The receiving department is responsible for seeing that this is done. (2) When a carload shipment is received, the seals should be examined carefully to ascertain whether they have been tampered with in transit. Carriers do not cheerfully pay claims for loss where the seal record is perfect. (3) Upon opening a car, the shipment should be inspected for evidence of apparent damage; and, if found, the carrier should be notified at once, so that joint inspection may be held. (4) Sometimes loss or damage is discovered after goods have been placed in warehouse. It is very important that carrier be informed promptly if claim is to be filed. Carriers usually object to such claims, and delay will tend to defeat recovery. (5) Carriers are accustomed to charge shippers and receivers for undue detention of equipment. This charge is termed demurrage. At present, the shipper or receiver is allowed forty-eight hours' free time from the first 7 A.M. after the placement of the empty car for loading or the loaded car for unloading. Each day's delay thereafter means a charge of two dollars a day. The shipping department should see that empty cars are loaded promptly, and the receiving department is responsible for the prompt unloading of loaded cars.

Internal Organization of the Traffic Department

It is probable that no two traffic departments are organized precisely alike. A description of any one department, therefore, does not exactly fit any other department. The organization of each department is affected by (1) the volume of business; (2) the number and diversity of the products received and shipped; (3) the presence or absence of branch factories, branch warehouses, and branch sales offices; (4) the general organization policy of the business; (5) the policy of the firm as regards the acquisition of such transportation facilities as short lines of railway or private cars.

Typical sections of a traffic department which is large enough to provide for a division of duties are the following:

1. The executive desk, including the traffic manager, assistant traffic manager, and perhaps a chief clerk.
2. The rate desks
3. The routing desks
4. The claims desks
5. The tracing desks
6. The tariff desks

Although the term "desk" is used, each of the foregoing represents a division or section of the traffic department. If the receiving and shipping departments are under the line control of the traffic manager, they will constitute additional sections of the traffic department.

Rate Desks

The work of this division is usually regarded as the most difficult work in the department. It demands a wide range of knowledge, including the following: (*a*) knowledge of the organization, policies, and products of the firm represented; (*b*) knowledge of the organization and methods of the carriers; (*c*) knowledge of the law of common carriers and the regulations governing the relations of shipper and carriers.

The traffic department is primarily engaged in purchasing transportation service. It is interested therefore in (*a*) the kind of service rendered, and (*b*) the charges made for the service. It is with the "charges" aspect of the service that the rate desks are primarily concerned. The varied duties of the rate desks include the following: (*a*) the conduct of voluntary-rate legislation; (*b*) the conduct of involuntary-rate legislation; (*c*) the audit of the railroad expense bills submitted by the carriers (the rate men check errors in rates and classifications; the accounting department checks the clerical errors); (*d*) calculation of freight charges on outgoing shipments when freight is to be prepaid by shipper; (*e*) supervision of the preparation of bills of lading; (*f*) supervision of packing of goods; (*g*) supervision of loading and unloading of cars to prevent loss due to improper handling or loading; (*h*) preparation of information on rates for use of salesmen or others needing it; (*i*) co-operation with route desks in determining routing.

The Route Desks

This section manages the distribution of traffic among the various carriers. Many shippers do not route their shipments, but simply hand over their traffic to the carrier upon whose rails they are located, and leave the question of routing to the carriers. In such cases the carriers are obligated to route the shipment by the cheapest route available for the kind of service indicated. That is to say, the carrier is obligated to forward the shipment by the cheapest rail route by which that carrier can forward the shipment; but it is not required to forward it by a water route even though the latter is cheaper, unless the shipper so specifies. The larger shippers do, however, route their shipments, using this as a means of securing desired changes in the service, of preventing undesirable changes from being carried into effect, or as a means of maintaining friendly relations with certain carriers.

In the actual routing of carload shipments numerous factors enter into calculation; and only a few of them will be noted here. One of these will be rates. Other things being equal, the shipper will try to route according to the cheapest route, and according to the most direct route. But in practice other things are not always equal. On important competitive traffic, rates tend to be the same by all carriers, and the question then becomes one of service. Much of the railroad competition today is a competition of service. And service includes a number of factors. It includes the time required for the transit, for on some goods a day saved in transit is very important. It includes regularity of the service, so that the shipper can definitely plan on placing his goods at a certain destination within a specified time. It means the condition of the goods on arrival, indicating that, if perishable, they have received the proper attention en route; if dead freight, that they have not been subjected to rough handling. It means freedom from pilferage, dispatch in the settlement of loss and damage claims, willingness to give "special cars" a little extra attention in order to expedite their movements, and ability to give the shipper information concerning the movements of his shipments. One carrier may be good for perishable freight, and another for dead freight, still another may offer preferred service for live stock. The route desk must maintain such records of carrier performance that they can indicate quickly what carrier to use for any given shipment.

Matters of general policy may affect the routing of shipments. Thus it may be the general policy to favor water lines where possible, in order to keep such lines of transportation in existence and able to offer some competition to the railroads. It may be the general policy to favor the lines of railroads, which are weak financially, in order to maintain several transportation routes available in times of heavy traffic. It may be the policy to distribute the traffic among several railroads, and thus keep all in an amiable mood. Railroads serving the plants or the branch houses may be favored with a long haul, where possible, as a partial compensation for the local switching work done for the firm. Routes leading through congested terminals may be avoided in order to prevent the shipments from being caught in traffic jams.

The Claims Desks

Many shippers do not attempt to collect their own claims from the carriers, but instead they turn them over to some Trade Association or some private Claims Bureau or attorney for collection. Shippers with claims bureaus of their own may file only their own claims; or they may also file and collect the claims of their customers. Thus, the mail-order houses are virtually required to file claims for loss or damage to shipments made to their customers, because the latter are generally individual consumers, and do not know how to collect a claim from a railroad. Where a firm has several producing plants, and many branch houses, the claims bureau must handle claims from the several factories and branches as well as from customers; and the work then becomes quite complex.

Claims against the carriers may arise from several causes. (*a*) First may be mentioned claims for the physical loss or damage to shipments in the course of transportation. (*b*) Claims for overcharge result from errors in rates, errors in computation, errors in classification, and duplicate collection of freight charges. The latter would occur where the shipper prepays the shipment, but the destination agent, not being informed of this, also collects the charges from the consignee. Overcharge may also occur where the carrier charges for a service which it is not entitled to demand. (*c*) Where shipments are delayed in transit, and the market price of those commodities declines, a claim for loss may arise. This loss, however, is not a physical loss, but a pecuniary loss. Because of the delay, the shipper did not receive so good a price for his shipment as he would have received had the shipment arrived on time. (*d*) In the case of C.O.D. express shipments, it sometimes happens that the express company fails to remit to the shipper, and a claim, accordingly, is filed for unremitted collections.

Several steps are involved in the actual handling of a claim. (*a*) First, when a loss has been incurred, the facts must be assembled and presented to the claims bureau. Enough facts must be developed so that the claims investigator can tell whether a claim should be filed. This work of "initiating" the claim is usually performed in some other department, such as the receiving department, a branch house, or even by a customer. (*b*) The claims desk must now determine whether the shipper has a rightful claim against the carrier. The mere fact of loss does not prove that the carrier is responsible. The loss may have been due to the poor condition of the goods at time of shipment, to poor loading methods by the shipper, to defective packages, or to erroneous instructions given by the shipper himself. In such cases the carrier is not liable. Or if the loss is due to floods, or to some intervention by the government, or to capture by the enemy, again the carrier may not be liable. (*c*) Having determined that a rightful claim exists, the next step is the filing of the claim. This means that the claim must be filed with the right carrier, with the proper agent of that carrier, that it must be filed for the correct amount, and *supported by the proper documents*. Shippers usually file claims with the initial carrier, and consignees with the destination carrier; but there are many exceptions to this statement. The claim may be filed with the local freight agent, or it may be sent to the freight claim agent of the railroad. (*d*) After filing the claim, it will be necessary to keep in touch with the carrier, and speed up the investigation of the claim. If not paid promptly, the claim now enters the correspondence and argument stage. The carrier makes its own investigation, and discovers facts which it thinks relieves it from liability. The shipper must now show that those facts do not relieve the carrier from liability, or that those alleged facts are wrong, or must develop other facts by further investigation. The facts developed may show both parties at fault, and it may therefore be necessary to compromise on the claim. (*e*) If carrier and shipper cannot finally agree, and the shipper still believes that his case is a good one, he may resort to the courts to collect. This happens relatively infrequently.

The documents required to support a claim vary somewhat with the different classes of claims and the circumstances in each case. Using, for example, the general cases of loss and damage, or damage to shipments, the following documents are usually required: (*a*) the bill of lading covering the shipment, or, if it cannot be produced, a bond to indemnify the carrier in case someone else should later file a claim on the same shipment, and present the original bill of lading. (*b*) The freight expense bill with the notations of loss or damage entered thereon by the agent of the carrier, at the time consignees received the goods from the carrier. Of course, if the entire shipment failed to arrive, there would be no expense bill. (*c*) A certified copy of the invoice covering the shipment, to show the value of the goods lost or damaged. (*d*) Where the goods are damaged and accepted by the consignee, or a certified statement showing the sum realized from the sale of the goods; or, if repaired, a certified statement of the cost of the repairs. The purpose of these documents is to show that a shipment was actually made in which the claimant had an interest; that the shipment was actually lost or damaged; and to present evidence which proves the amount of the loss sustained by the claimant. Though not required, special forms are in general use for filing loss and damage and overcharge claims.

The Tracing Desks

Not all firms actually trace their shipments; many simply request the carriers to trace. The sales or purchase departments request the traffic department to trace a specified shipment; and the tracing desk discharges its responsibility by forwarding the request to the proper railroad official, and informing sales or purchase departments of the result. Very likely the sales or purchase departments referred to the given shipment by purchase order or sale number. The carrier's agents will need more information than this; if less-than-carload shipment, at least the date of shipment, name of consignee, destination, and initial carrier; if carload, at least the date of shipment and number of the car as well. When the tracing clerk receives the sale or purchase-order number, he proceeds to secure the additional information necessary, and then requests the carriers to trace.

But other firms actually trace the shipments just as the carriers themselves would do.

The tracing procedure varies with circumstances; but, in the main, it consists in following the course of the shipment. Limits of space forbid any extended discussion of this subject; therefore, one example of less-than-carload tracing will be given. Suppose that a shipment of agricultural implements has been made from point *X* to point *Y*, and that the shipment has not arrived, although sufficient time has elapsed. The tracing clerk first ascertains from the office records the date of the shipment, the name of the consignee, and the destination. He then writes or phones the local freight agent at *X*, gives him this information, and asks the date and number of the waybill, the initial and number of the car in which the shipment was loaded, and the point to which the car was forwarded. Suppose, in this case, that the local agent at *X* informs him that the date of the waybill was May 25, 1923, the number of the waybill M3697; that the shipment was loaded in car D & H 19950, and that this car was forwarded to point *Z*, at which the shipment was to be transferred. The tracing clerk now communicates with the agent at *Z*, giving him the date and number of the waybill, the initial and number of the car, and asking him for his "forwarding reference"; i.e., the same information sought from the agent at *X*. Assume that the agent at *Z* loaded the shipment into a car forwarded direct to *Y*. Securing the number and date of the waybill from *Z* and the car number and initial, the next step will be to communicate with the agent at *Y*, asking him to prove delivery. If the agent at *Y* replies that the shipment is on hand, or that he holds receipt from the consignee, the tracing clerk so informs the sales department, and closes the file. If the shipment is not discovered, nor delivery proved, the tracing clerk turns over the record to the claims department, and a claim is filed for the loss. Thus, the tracing process consists essentially in following the shipment through the various junction and transfer points from origin to destination.

The Tariff Desk

This desk is charged with the duty of securing the freight tariffs and classifications as they are published, and maintaining an up-to-date tariff file. Carriers do not distribute their tariffs to shippers except upon request. It is merely a matter of accommodation that the carriers allow the shippers to have copies of their tariffs. New tariffs or changes in old tariffs are daily occurrences; and in some of these a given firm may be interested. Even where a firm is placed on the mailing list of a carrier, it is still necessary to check the list constantly, to see that copies of all necessary tariffs are being received. Large firms maintain tariff files containing from 5,000 to 20,000 tariff issues. Such a file provides sufficient work to occupy the time of one or more clerks.

QUESTIONS FOR CLASS DISCUSSION

1. Illustrate how transportation may affect the following: (*a*) sales, (*b*) purchasing, (*c*) production, (*d*) finance.
2. What is a classification? a tariff? What is the purpose of each?
3. Illustrate the various uses a business can make of information concerning rates.
4. What is meant by (*a*) voluntary rate legislation, (*b*) involuntary rate legislation? When should each be used? Indicate some of the information needed (*a*) to decide when it is advisable to attempt each, (*b*) to push it to a successful conclusion.
5. "The traffic department should suggest and supervise the carrying out of methods to conserve the car supply, and to secure the maximum use of the limited supply." Explain methods of accomplishing these ends.
6. Since the purchasing and sales departments of many firms frequently request the traffic department to trace shipments that are not overdue, the tracing privilege is often abused. The result is that carriers sometimes pay scant attention to tracer requests unless it is clear that shipment has been delayed. Some also claim that tracing is practically useless because it cannot expedite the shipment anyway. In view of these facts, what value is there in the tracing privilege?
7. Traffic departments, as such, are comparatively recent developments of business organization. Why is this true?
8. State six ways of locating the traffic department in the business organization. Explain when each may be used, and why it is used in each case.

9. Why should the "paper work" of the receiving and shipping departments be centralized when the physical handling of the goods is centralized?
10. Give the factors which influence the internal organization of the traffic department, and explain why each is a factor.
11. What are the advantages and disadvantages of leaving the routing of shipments to carriers? What factors may influence the shipper in planning his routing?
12. Give the causes from which claims against carriers may arise.
13. Why should the traffic department have supervision over (*a*) the shipping department, (*b*) the receiving department, (*c*) packing-rooms, (*d*) loading and unloading operations? In what respects should the traffic department have supervision over branch-house activities?
14. Under whose control should goods stored in transit be placed? Outline a procedure for exercising an effective control of such goods.
15. Illustrate concretely how standards may be used in the administration of traffic operations.

EXERCISE NO. 36

The X Corporation is a manufacturer of cardboard and boxboard containers. It has one factory in the West and another in the East. Its general sales office is located at Chicago. Its salesmen cover the entire United States. Its volume of business is approximately $4,000,000 annually. Inbound raw materials and supplies will average 200 carloads per month; outbound finished goods, including the less-than-carload shipments, will average 175 cars per month. The firm has hitherto been without an organized traffic department, though it has necessarily had shipping and receiving departments which have performed some of the activities ordinarily under the jurisdiction of a traffic department. At the request of the president, you have studied the traffic problems of the company, and have decided it should have a traffic department under the jurisdiction of a traffic manager and two assistants.

Required

Write a report to the president explaining the benefits the firm would gain from establishing such a department. Outline the duties to be performed by each of the members of the department.

REFERENCES FOR FURTHER STUDY

1. Galloway, *Office Management*, chap. xxi.
2. Jones, *Administration of Industrial Enterprises*, chap. xx.

CHAPTER XXIII

RECORDS AND REPORTS FOR TRAFFIC CONTROL

Nature of Traffic Records and Reports

Since traffic departments are a comparatively recent development, executives have typically given much less thought to the records needed in controlling traffic operations than they have to records needed in controlling sales, purchasing and production operations. Consequently, the records used for this purpose are often inadequately developed and vary widely from firm to firm. The records and reports used in each department depend mainly on the activities of the department and the point of view of the traffic manager.

In most firms there is a tendency to design the records of the traffic department so that a copy of the record will serve as a report. There is also a tendency to design each record and report so that it will serve the needs of all the officials of the traffic department as well as the officials outside the department who desire information concerning its operations. This is in harmony with the modern tendency in accounting practice to use every effort possible to eliminate duplicate records and reports. The operations and organization of the traffic department are well suited for the application of this fundamental principle of record construction. It will be possible in the present discussion to indicate only the most typical records and reports used in traffic control.

Records and Reports for Controlling Claims

The principal records required in the handling of claims are (1) the duplicate of the claim and the papers submitted in support thereof; (2) the claims register; and (3) the claims ledger.

In various forms, these are likely to be found in the claims section of all traffic departments, whether or not the accounting is carried on in this department. The claims file should contain a record of the claim as originally filed and all subsequent correspondence, amendments, or compromises. When the claim is settled, the documents relating to it should be so stamped, removed from the unpaid file, and transferred to a paid or closed file.

It is the policy of most claims departments to trace the claims departments of carriers. For example, if the carrier does not acknowledge the receipt of a claim within a reasonable time the claims department would trace the carrier for acknowledgment. Or, if the claim has been acknowledged but no report received within thirty days another tracer would be sent. Copies of the tracers are attached to the file containing the original claim. The files are "combed" periodically to detect claims which should be traced.

The purpose of the claims register is to furnish a consecutive number record of the claims filed. A useful form enters the claims in the register according to months. The footings at the end of the month show the total of the claims filed for that month. Since it is desirable to know how many were loss and/or damage claims and how many were overcharge claims the record should be designed to show this information. Chart XXXV shows a simple form of a claims register.

If a business is a consolidation of several subsidiaries, and one traffic department functions for them all, it may be desirable to split up the claims register, by having a separate register for each subsidiary. In that case, a distinct number series will be required for each subsidiary to avoid confusion.

The claims ledger carries the claims accounts against the particular carriers. It is a subsidiary ledger, controlled by the claims outstanding account in the general ledger. A convenient form of the claims ledger is shown in Chart XXXVI.

It is desirable to have both the firm's number and the carrier's number. When the carrier makes remittance, the check is sent in settlement of specific claims, hence the credit to the carrier must identify the particular claim concerned. The date of filing compared with the date of payment shows whether or not the carrier on the whole settles claims expeditiously. The point of origin and destination are mainly important by way of facilitating correspondence with branch houses. Thus a branch house interested in a certain claim may write to the traffic department to learn about the status of the claim. It may omit to give the claim number, but may give the carrier against which the claim was filed, the origin point of the shipment and the approximate date. From such data, the claim can be ascertained from the ledger. Even though the accounts with the carriers are kept in the accounting department, the traffic department often keeps a ledger record of claims against carriers. This is done because the traffic department desires to have the information readily available when the freight solicitors of the carriers call. These solicitors often inquire how their particular road is handling the claims; with a ledger record at hand, it is easy to inform them.

CHART XXXV

FREIGHT CLAIM REGISTER

MONTH OF____________________

Date of Entry	Number	Claim Against	Kind	Amount

Some shippers do not maintain the claims register in the form described above. When the claim is filed, several copies of the

CHART XXXVI

Claims Ledger

Account of ____________ Sheet No. ______

Our Claim Number	Railroad's Claim Number	Date	Point of Origin	Destination	Kind	Amount of Claim	Revisions	Paid		Memo
								Date	Amount	

claim are made, and one of these, containing all the pertinent data, is filed in a loose-leaf binder, which constitutes the list of unpaid claims. As paid, these sheets are stamped, paid, and transferred to the "Paid Ledger." It is obvious that this form does not bring together in one place all the claims outstanding against a given carrier; and it is usually necessary therefore to supplement it with a list of claims against the carriers individually.

The amount of information desired by the traffic manager depends in part upon the amount of the outstanding claims and the difficulty encountered in collecting these. In a period of intense business activity, the number of claims usually increase rapidly; the traffic department may be unable to attend to them with the usual care and the railroads may also be swamped with claims. Under these circumstances, the traffic manager should receive frequent and detailed reports. In any case the traffic manager and the head of the claims division should have each month a report containing information equivalent to that shown in Chart XXXVII.

Records and Reports for Controlling Routing

The records used by the routing section of the traffic department consist of (1) those used to guide future routing and (2) those showing past routing.

The routing section in deciding on the routing of any specific goods is guided by the wishes of the customer, the location of the branch house or factory, and the policy laid down by the traffic manager. The traffic manager may instruct the routing section concerning the proportion of traffic to give to each carrier during the next week or month. For example, the traffic manager may estimate that 500 cars will be shipped to the seaboard during the next week and that these can be handled best by sending one-half of them over the Erie and the remainder over the Nickel Plate. He instructs the routing section accordingly. His instructions must be kept in such form that they will not be overlooked. One method is to record them on cards of the

CHART XXXVII

MONTHLY REPORT ON CLAIMS FILED, PAID, AND OUTSTANDING

Items[1]	This Month	Last Month	Same Month Last Year	This Year to Date	Last Year to Date	End of This Month	End of Same Month Last Year	End of Last Month
Claims filed								
Loss and damage								
Overcharge								
Total								
Claims paid								
Loss and damage								
Overcharge								
Total								
Claims cancelled								
Loss and damage								
Overcharge								
Total								
Claims outstanding								
Loss and damage								
Overcharge								
Total								

[1] Only the last item, "Claims Outstanding" will appear in the three columns appearing at the extreme right. If desired additional columns may be provided so the increase and decrease as between periods can be shown.

nature of those discussed below in connection with the routing of shipments to branches.

The customer's preferences are indicated on the sales order. The preference of the customer will be conceded for terminal routings but the shipper may elect to control the initial routing of the shipment. If a firm has several branches it should keep careful records showing the preferred routing to each. These may be kept on cards filed alphabetically; they show the location of the branch house, the carriers whose tracks serve it, the preference of the branch-house manager as to terminal carrier (that is to which of two or more carriers serving that city he desires to deliver the goods), the estimated transit time from the various factories to the branches, and the preferred routing from each factory to the branch house. Since embargoes affect routing, the notices of embargoes should come to the route desk; they should be filed as received and corrected as revised or canceled.

The record of past routing is useful in dealing with the representatives of the carrier. The solicitor of a given carrier affirms that his line is not securing the "proper" share of the traffic. His statement may easily be checked if a record of past shipments is maintained. Or, again, in soliciting the carriers for a given rate reduction, one question likely to be raised is, What is the probable volume of traffic over our line? Reference to past movements over that line may be an important factor. This information is made up into a monthly report, showing the carloads shipped and received at each plant, the line receiving the initial haul, and the lines receiving intermediate or final haul. The report of carload shipments has columns at the top for each plant; divided between shipments and receipts at the left-hand side appear all the roads which can have the shipments initially. A supplementary report lists all the cars via any other road which participated in the movement. The reports from which this report is compiled came from the several shipping and receiving departments, which report daily to the traffic department the carloads received or shipped and the routing of the same. The records on routing are usually confined to carloads.

Records and Reports for Controlling Demurrage Charges

The checking of demurrage bills and the prevention of unnecessary demurrage necessitate a record of cars on plant. Demurrage is a charge for the detention of cars, either empty or loaded, beyond a specified time. There are two plans for the computation of demurrage, known respectively as the straight demurrage plan and the average demurrage plan. Under the former each car is considered strictly by itself; under the latter the cars are averaged against each other each month. The general rule is that a shipper has forty-eight hours free time within which to load an empty or unload a loaded car. After that time demurrage, which at present is $2.00 per car per day, commences. Time is computed from the first 7:00 A.M. after placement of car for unloading or loading, or after notice of ability and willingness to place car, known as constructive placement. Under the average plan, as under the straight demurrage plan, forty-eight hours free time is allowed; if a car is surrendered within twenty-four hours, one credit is allowed. If say the next car is held seventy-two hours, one debit accrues. The credit on the first car may be used to offset the debit on the second car. Credits on cars to be unloaded may not be offset against debits on cars to be loaded. The average demurrage plan goes into effect by agreement between carrier and shipper; the debits and credits are averaged monthly. If a debit balance, shipper must pay $2.00 per excess debit; if a credit balance, the shipper receives nothing therefor.

Where the number of cars handled is not large, the inbound and outbound freight records of the shipping and receiving departments may be used to check the demurrage. A useful form of this record is shown in Chart XXXVIII. But where hundreds of cars

CHART XXXVIII

REGISTER OF INBOUND CARS

Placed	Free Time Consumed	Released	Days Held	Car Initial	Car No.	Route	Invoice	Commodity	Works	Weight	Remarks

are received on the plant daily, the record shown in this form is not effective as a record on particular cars. The demurrage bills of the carriers are presented according to car number and initial; for rapid checking of these bills it is essential that record of this car be kept by initial and number. In such a case it is better to resort to the carrier practice of keeping records in terms of car numbers. In this case a monthly car-record book is prepared; the page numbers stand for certain cars; the top of the page is ruled to represent days of the month; the car numbers and initials are inserted at the side. If the plant is large a code number is given to each track and loading point. At 7:00 A.M. "yard clerks" make a check of the cars on the plant. They report the number, initial, and location (in code) of every car on plant and state whether it is loaded or empty. Their reports are turned in to the car-record desk where they are entered in the records. The monthly car record will be in the form of Chart XXXIX.

CHART XXXIX

RECORD OF CARS ON PLANT							
Car Initial and Number	Day of Month						
	1	2	3	4	5	6	Etc.
D & H 21736.........	....	50	50				
L & N 76336.........	33	33	35				
N.Y.C 10356.........	....	26	....				

This means that Delaware & Hudson Car No. 21756 was on hand on the second of the month at location designated by code number 50, and that it was also there on the third. Since it does not appear in the record thereafter the presumption is that it was delivered to the carrier on the third or it would have appeared in the 7:00 A.M. yard check on the fourth. Likewise Louisville & Nashville Car No. 76356 was at location 33 on the first, at the same place on the second, but sometime on the second it was moved to location 35; not appearing on the subsequent yard check, the presumption is that it was delivered to the carrier on the third. The loaded cars and the empties can be distinguished from each other by entering the loaded cars in black and the empties in red. All cars whose numbers end in 56 will thus be found on page 56, those ending in 57 on page 57 and so on.

This record serves not only to check the monthly demurrage bills but also to prevent demurrage. After working the yard checks through the car records, the car-record clerk should prepare from this record a statement of the cars already under demurrage, and also the cars which will go under demurrage unless unloaded or loaded and forwarded before the next day. Copies of this statement should go to the traffic manager and to those in charge of loading and unloading operations.

Record and Reports for Controlling Tracing Operations

The records maintained in connection with tracing depend upon whether the tracing desks trace only those shipments which they are requested to trace, or whether they keep records of all delayed cars. The former is the more common rule. A standard form may be devised for use in tracing shipments. A copy of this form is sent to the department requesting that the tracing be done and a copy is retained in the file of the tracing division. To this file copy is attached all correspondence until the file is closed. It will be closed either by proof of delivery or by failure to prove delivery and the consequent filing of a claim. Some firms do not believe in the efficacy of a tracer form and use letters instead. If the volume of business warrants, the tracers on carload shipments may be separated from the tracers on less than carload lots. Consecutive numbers are assigned to each class.

Sometimes records are maintained on delayed shipments, and sometimes they are maintained on all export shipments whether delayed or not. A car-record book is kept, the page numbers corresponding to the last two numbers of the car. Each case of a delayed car will be given a consecutive file number. In this record will be entered the origin and destination points of the shipment, the car number, and initial, the contents, route, place where delay occurred, its extent, and explanations. If the delay is not explained satisfactorily the carrier will be asked to account. Copies of this record are sent to the claims department, the sales department, and the purchasing department. Similar records may be maintained on train performance.

Executive Reports and Standards for Traffic Department

Since the great majority of traffic departments are small, the matter of managerial reports and records has not received much attention. The traffic manager in many cases is able to personally supervise his subordinates, and therefore does not feel a need for reports on their activities. A periodic audit of the work at various desks is required by some firms. In this case each clerk is asked perhaps twice a year to report in writing the work done by his desk. While the budget is used by many firms for the purchasing department which purchases commodities, it is rarely used for the traffic department which purchases a service. Firms simply have not regarded this item as important enough to require budgeting. Standards are also used sparingly in this department. There seems to be little knowledge of the number of claims that can be handled by a claim investigator in a given time, of the number of expense bills that can be audited by a rate man, of the cost of filing claims, and so on. It must be admitted that considerable work of the department cannot be subject to routine. A rate man may audit expense bills today, compile rate statements for branch houses tomorrow, and work up data for an Interstate Commerce Commission hearing the following day. The last-named activity cannot be subjected to standards, because the cases vary so greatly in character and extent. Much work of the department is of a consultative character—attending meetings with railroad men, and holding conferences with other departmental heads.

The traffic manager will usually require reports of the number and amount of claims filed, and outstanding, as compared with previous years; of the car situation, that is, whether ample for shipments; of delayed shipments; of demurrage; of routing. He will watch the expenses of his department, and observe carefully what items of expense are charged to him. In some cases he must watch carefully the shipments of coal on hand, in yards awaiting unloading, and in transit. Some firms having a large volume of plant rubbish require the traffic manager to look after its disposal. His work is not standardized. If demurrage happens to be the important consideration, his time will be spent on that. If car supply is short, he will study ways and means of meeting that situation. If embargoes are common, and congestion serious, that will be his problem. Or an extensive rate adjustment may require all his attention either at hearings with the railroads, or before the Interstate Commerce Commission. If claims have accumulated unduly, he will study means of reducing them. It is thus evident that difficulties are encountered in prescribing standards of performance either for the traffic manager, his department, or his subordinates. Nevertheless much more can be accomplished in this direction than has been accomplished in the typical traffic department. The present situation offers a fertile field for study.

QUESTIONS FOR CLASS DISCUSSION

1. "There is a tendency to design the records of the traffic department so that a copy of the record will serve as a report." What advantages are gained from this? Do you see any disadvantage?
2. What officials outside the traffic department may desire information concerning its operations? Indicate the nature of the information desired by each.

3. Give the source of the information shown in each column of the claims register and the claims ledger.
4. Should these records be maintained by the traffic department or the accounting department?
5. Give the source of the debits and credits to the claims outstanding account on the general ledger. Illustrate concretely the relation of this account to the claims register.
6. What factors should be considered in deciding the amount of freight to give to competing lines? In what way can reports be used in making these decisions?
7. "The preference of the customer will be conceded for terminal routings but the shipper may elect to control the initial routing of the shipment." Why?
8. For what purpose is the information shown on the report of carload shipments used?
9. Explain the purpose for which the register of inbound cars is used.
10. Explain the procedure by which demurrage charges are controlled.
11. Describe the records needed in tracing shipments.
12. Suggest reports which are useful to the traffic manager in the administration of the traffic department. Suggest standards for use in controlling traffic operations and explain how these standards are used.

EXERCISE NO. 37

The Davidson Manufacturing Company has sales of $5,000,000 a year. It has a well-developed functional organization. Its principal product is steel wrenches for the use of plumbers. The company receives an order for a less-than-carload lot from a customer in Denver. These goods are shipped from the company's factory at Chicago. The customer reports twenty days later that the goods have not arrived and requests the company to trace, and this is done. Ten days later the customer reports the receipt of the shipment in a damaged condition and requests the company to file claim for the damage.

Required

Outline the procedure and draft the forms required from the time the order is received until settlement is received from the railroad for the damage claim.

REFERENCES FOR FURTHER STUDY

1. Parsons, *Office Organization*, chap. xxv.
2. *Accounting and Office Methods*, chap. xix.

PART VII

PRODUCTION CONTROL

CHAPTER XXIV

THE PRODUCTION PROGRAM

The Production Problem

The task of supplying the goods needed to satisfy customers' demands is somewhat different in a manufacturing business from that of a mercantile business. In a mercantile business goods are typically sold in the same form in which they are purchased. In a manufacturing business, the materials purchased are subjected to the operations of the factory which transform them into the finished product offered for sale. In the manufacturing process it is necessary to employ labor and to incur expenses. Consequently the cost of the finished product consists of the cost of the materials used, plus the cost of the labor employed, plus the expenses incurred in the manufacturing process. These expenses are known as manufacturing expense.

Raw materials purchased for manufacturing purposes are placed in the storeroom until they are needed in the factory. The costs arising in connection with the raw materials consist of the original invoice price, the cost of transporting them to the storeroom, and the charges created in the storing of the materials until they are transferred to the factory. The raw materials are transferred from the storeroom to the factory as they are needed in the manufacturing operations. As they pass on in the manufacturing process, other costs develop. These costs are labor and manufacturing expense. Labor is the wages paid employees who manufacture the products of the factory (often referred to as *direct* labor). Manufacturing expense includes the salary of the superintendent of the factory and his assistants, the wages of janitors and helpers (often referred to as *indirect* labor), depreciation and repairs on the building, and equipment, heat, light, power, and other items of a similar nature.

While the materials are in the manufacturing process, they are termed *goods in process*. When they have passed through the manufacturing process, they are termed *finished goods*. The production problem is to secure the use of the three elements of manufacturing cost (materials, labor, and manufacturing expense) in such a manner as to provide in finished form the desired product at the desired time, in the desired quantities, and at the lowest possible cost.

Requirements for Control of Production Operations

The effective control of production operations requires the following:

1. Determination of what is to be manufactured and the quantity to be manufactured. The answers to these questions should be expressed for administrative purposes, in the form of a production program.
2. Establishment of comprehensive procedures for controlling the use of materials, labor, and equipment in the production of the desired product.
3. Determination of the quantity of materials, labor, and expense needed to produce the quantity of finished product called for by the production program and the effective control of these materials, labor, and expenses while they are in the production process.
4. Development of a proper system of records for determining the cost of the production operations and the manufacturing cost of the finished product.
5. Preparation and use of reports giving the information needed for carrying out (1) to (4) inclusive.

Determination of What to Produce

One of the first problems which confronts each new manufacturing business is to decide what to produce. In fact, this problem should be solved fairly definitely before it is decided to launch a business. Unless there is substantial evidence that a market exists for a specific product which the business will be able to produce, it should not be organized. To commence the production of an article without considering the possibilities of marketing it is to invite disaster.

The manufacturer must decide not only the general nature of the product he is to manufacture but also its specific design. In the highly developed stage of modern manufacturing technique, design has an important influence. Design exists as an important factor in every manufacturing industry, but in a very different degree of development in some compared with others. In an industry producing a product such as a liquid or powder, it exists in the most elementary form, that of a mere formula or mixture. In an industry where design is a distinguishing feature of the product, say one producing cut glassware, it exists in a highly developed state. In most manufacturing firms it necessitates careful consideration on the part of the production executives and in many it is of sufficient importance to require a staff of experts for its study and development.

Sales demands ultimately decide what should be produced. The sales department is in the best position to ascertain what sales demands are but it is not wise to follow blindly its interpretation of sales demands. Present demands may be changed and new demands may be created. The success of many companies is due to the creation of demands for a new product. The production department may produce a new product or new uses for an old product as a result of their experimental work. It is then the task of the sales department to ascertain by means of market analyses and sales research the sales possibilities of the new product. These possibilities should be ascertained before production on a large scale is undertaken. The decision to produce an article, therefore, is the result of the combined judgment of the production and sales executives and this judgment should be based on careful and comprehensive production and sales research. Moreover, the capital required in producing and marketing a product and the possibilities of procuring the necessary supply of materials and labor are important factors in making a decision.

Although profit is the ultimate test by which to judge the advisability of manufacturing an article, judgment must be used in applying this test. The production and sale of an article may result in a loss at the present time, but there may be abundant evidence that its continued production will result in a profit. The present loss may be due to the fact that the process by which it is produced has not been perfected resulting in an excessive production cost or it may be that it is sold in such small quantities now because the market for it has not been sufficiently developed, that the required quantity of production is so small that a high unit cost results. If there is sufficient evidence that the present difficulty can be eliminated, so that a satisfactory profit will result, the production of the article may be continued.

In determining the possible profits to be obtained from the production of any specific commodity statistics concerning past costs, sales, and profits will be necessary. It will also be necessary to have statistics concerning possible future costs, sales, and profits. The collection and interpretation of such data is an important task of the controller and his assistants in a manufacturing firm.

Determination of Quantity to Manufacture

Roughly speaking, the estimate of sales determines the quantity of goods to be produced, but this statement is subject to some modifications. During any specific period of time the volume of sales and the volume of production are rarely the same amount. In a business which produces goods in accordance with customers' specifications and hence cannot produce for stock, the production must of necessity lag behind the sales orders. In a business producing a standard commodity which can be manufactured for stock in anticipation of sales orders, production must precede the receipt of sales orders. There is always a problem of adjustment between the sales program and the production program because of the lag between sales orders and production requirements.

Moreover, it is not correct to say that the estimate of sales determines production requirements, for the sales estimate must be revised in the light of production possibilities before it is made over into a sales program (see p. 325). In making this revision it is necessary to consider not only the possibility of producing the quantity called for by the sales estimate but also the possibility of producing this volume at an economical cost. The sales estimate may call for the production of some items in such small quantities that they cannot be produced economically, or it may call for such a volume of production of some items that it would be necessary to incur so great an amount of extra expense to produce the amount required that it would be unprofitable to do so.

The sales estimate may not provide for a well-balanced production program. It may call for so many of some items and so few of others that the result would be the overloading of some departments or some machines and a lack of work for other departments or other machines. The production department should have available data on production capacity which will indicate all this so that it can suggest the necessary revisions in the sales estimate.

To be able to make these revisions it is necessary for the production department to have data of two kinds:

1. It must have an analysis of each of the products offered for sale which shows the manufacturing operations necessary in its production.

2. It must have a record of each of the machines operated by the company showing the operations the machine performs and the number of operations it can perform in a specified time.

If these data are available it is possible to ascertain the volume of the operations required to produce the goods called for by the sales estimate and to balance this against the machine capacity of the plant. Three situations may arise.

1. The sales budget may approximately equal the production capacity which is the desirable result.

2. The sales budget may exceed the production capacity in which case one of three things must be done: (*a*) the sales budget may be reduced; (*b*) additional equipment may be secured; (*c*) some goods may be purchased from outside sources.

3. The sales budget may be less than the production capacity, in which case it may be desirable to attempt to increase the sales program so as to provide for a more desirable production program. In some cases this may be impossible. Under these conditions some machinery may be left idle until an increase in sales can be secured. If it is evident that a decrease in sales is permanent the production capacity may be reduced by the sale of the unnecessary equipment.

It is not an easy matter to co-ordinate sales possibilities with production capacity. In fact it is one of the most difficult of administrative problems. The need for this co-ordination is so great, however, that it is worth while to spend any amount of effort to secure it. The first step in the solution of the problem is the preparation of data to show what the possible sales are and the production capacity available.

In so far as possible a manufacturing business should select its machinery and equipment so that it will be well balanced and flexible. This makes it possible to adapt production to variations in sales demands. There is a limit, however, to the extent to which machinery can be adapted to different uses, and consequently the sales program should be harmonized with the factory possibilities. Often it is possible to shift the emphasis of the sales program by means of extra efforts on the part of the salesmen, or by the nature of the advertising, and to increase the sales of the items the factory is best adapted to produce.

In some companies the use of manufacturing facilities is such an important problem that the budgeting plans are based on production capacity instead of sales possibilities. In this case an analysis is made of the fixed and variable costs and expenses and an estimate made of the volume of sales necessary to enable the company to earn a normal rate of profit. This amount is then set up as a minimum for which the sales department must strive and also as a standard by which to judge the performance of the department each period. Budgets set up in such terms are useful in showing possibilities and requirements. They indicate the results to be attained by an increase in volume and show the significance of fixed expenses in an organization. They may also be useful in urging on the sales organization to greater efforts. They are limited in their use for financial control and for coordinating production and sales activities with the activities of the other operating departments. Obviously for these purposes it is desirable to know what the sales and production operations are expected to be, not what they should be.

Translation of Production Requirements into Manufacturing Schedules

The sales budget states the requirements of the sales units during the next budget period. Presumably these requirements state the number of each item of goods which must be provided the selling units during the period. To translate these requirements into an estimate of production for the period, it is necessary to take into consideration the inventory of finished goods at the beginning of the period and the estimated inventory of finished goods at the end of the period.[1]

To illustrate: The sales requirements of the Palmer Manufacturing Company for the next budget period for article Y are estimated to be 200 units. The records of the factory show that

[1] The present discussion deals with production planning in a company manufacturing for stock. The problems of a company manufacturing on special order will be considered later.

the inventory of item Y at the beginning of the period is 60 and it is estimated that an inventory of 40 at the end of the period will be sufficient. The estimate of production on article Y for the period will be $200+40-60=180$. Each item on the sales budget must be considered in the same manner to determine the estimate of production for the period.

But the problem of the production department is not merely to produce the quantity of goods that are to be sold during the budget period. It must produce the goods in anticipation of sales orders and place them in the finished goods storeroom so that customers may be served promptly and according to the delivery dates given in the sales contracts. An easy solution of this problem would be to manufacture before the beginning of the budget period or shortly thereafter all the goods to be sold during the period.

Such a procedure is clearly impracticable except in rare cases. In the first place the production manager desires to distribute his manufacturing processes throughout the year so that he may make the fullest possible use of his plant and equipment and may offer employment continuously throughout the year to his permanent labor force. It is clearly undesirable for the production manager to make up all the product in advance of the selling period and then shut down the factory for several weeks or months. To a less degree, it is undesirable that he operate his factory at 100 per cent capacity for part of the year and at 50 per cent capacity for the remainder. In the second place, it is undesirable to manufacture in complete anticipation of sales demands, for this results in tying up a large amount of capital in inventory which should be at productive use.

It is necessary, therefore, to schedule production so that a sufficient amount of goods will be on hand at all times to meet sales demands and yet to prevent an excess of inventory with the consequent loss on the capital invested. To accomplish this it is necessary to set up a schedule for the inventory of finished goods and then prepare a schedule of production which will maintain the inventory schedule.

The inventory of finished goods is not a fixed or uniform amount. Since its purpose is to take up the slack between production and sales, this should be evident. It is a constantly varying amount. Because of its constant fluctuations it is necessary that an effective control be exercised over it. This control usually involves the following:

1. The establishment of maximum and minimum limits to serve as a check on its size.

2. The establishment of adequate records and an adequate procedure to enforce these limits.

The procedure for controlling finished goods inventories varies widely from firm to firm. Scarcely any two firms employ exactly the same procedure. A possible procedure and the method of establishing and using minimum and quantities to order as a part of this procedure is discussed and illustrated in the next chapter. The primary purpose of all inventory procedures, however, is to insure the issuance of production orders with sufficient frequency to provide for the replenishment of stock in accordance with the finished goods schedule prepared under the production program. This can usually be accomplished most accurately by establishing a "minimum" or "ordering point" and issuing a production order for a predetermined amount (known as the *quantity* to *order*) whenever the inventory drops to the ordering point. Both the minimum and the quantity to order will change when the production requirements are changed under the budget program.

Control of Production on Special Orders

Many manufacturing firms receive some orders for goods which they do not carry in stock but produce in response to the request of customers. There are some firms which produce all their goods in accordance with customers' specifications and therefore manufacture only on special orders. A foundry is a good illustration of the latter class.

The planning of production in a business producing only on special order is somewhat different from the planning of production in a business manufacturing for stock. Since goods are shipped as soon as they are manufactured there is no problem of controlling finished goods inventories. The principal problem, from the point of view of budget-planning, is to have available the facilities necessary to produce quickly the goods called for by the sales orders. The exact goods to be manufactured are not known until the orders are received. By studying past sales, however, it is possible to estimate with fair accuracy the general nature of the goods for which orders will be received. On the basis of this estimate it is possible to estimate the requirements in materials and labor for carrying out the contemplated program.

If a business manufactures on both standard and special orders, it is necessary to ascertain what proportion of the orders received will be special orders. In making the sales estimate the special orders should be estimated separately so that the production department can estimate the goods to be produced for stock and those which must be produced to order. To make an accurate estimate of the probable special orders to be received, it is necessary to make a careful analysis of past sales to show the trend of special orders by years and by territories. The effect of market conditions on the number of special orders received may also be useful information. The policy to be followed in handling special orders—whether they are to be given right of way or used only to take up unused time—will have a considerable bearing on the planning for their control.

Effect of Sales Fluctuations on Production Program

In many lines of business the sales volume fluctuates to a considerable degree during the year. In these cases two distinct production plans are possible: (1) the production volume may be made to fluctuate in harmony with the sales volume; or (2) the production volume may be kept fairly uniform throughout the year, in which case an inventory will be accumulated during the dull sales season to meet the excess demands of the rush season. The first method prevents the tying up of capital in unproductive inventories, but it may result in excessive production costs because of the necessary shifting of laborers and the maintenance of unused production capacity. The second method results in higher carrying charges on inventories but may result in a lower production cost. The better method to follow can be decided only in terms of a specific situation. Many firms follow a middle-of-the-road policy. They cause their production to fluctuate to some extent, but not to as great an extent as their sales. By this means they utilize most of their production capacity at all times, are able to give steady employment to the most valuable of their employees, and at the same time cut down the carrying charges on their inventories.

Control over Production Budget

To exercise control over the production budget and to make revisions when necessary, monthly reports are required showing a comparison between the estimated and the actual performance. These reports will vary somewhat, depending on the one for whose use the report is intended, and the method of production control employed. If inventories are controlled by means of minimum and quantities to order the inventory records should enforce automatically the production budget, but no matter how carefully these records are operated errors will occur which will make them fail to accomplish this purpose. When these errors occur they ought to be detected as quickly as possible and measures taken to remedy them.

For the use of the general officers a report made in the form of Chart XL is serviceable. This report serves to show to what extent co-ordination between sales and production is being achieved.

If the commodities sold by the company are not too numerous, each commodity should be shown on this report. Where the commodities are very numerous it will be necessary to show them on this report by groups or classes. In this case judgment must be used in interpreting the report, for it is obvious that there might be very close co-ordination between the sales and production of a group and yet there might be items in the group on which large inventories existed and other items for which unfilled orders were on hand.

The amount shown in column 2 in Chart XL will be taken from the last revision of the sales estimate. Column 3 shows the estimated quota for finished goods based on the estimated sales shown in column 2. Column 4 shows the actual sales for the month and column 5 shows the revised finished goods quotas, the revision being based on the actual sales as shown in column 4. Column 6 shows the actual deliveries to stock of finished goods. Columns 2 and 4 provide a comparison of estimated and actual production for the month. Columns 5 and 6 provide a comparison between the actual production and the revised production quota. A comparison of columns 3, 5, and 6 will show two things: (1) how much the original estimate of production was incorrect; and (2) how much the actual production varied from the estimated. The information shown in column 4 will be taken from the sales records for the month, and the information shown in column 6 will be taken from the balance of stores records. Column 7 shows the difference between columns 5 and 6. Column 8 shows the manufacturing orders outstanding in the factory at the end of the month. These should be shown by the records of the planning department and on the balance of stores records. Column 9 shows the amount to which the production budget for the next month should be revised.

If a monthly quota system is maintained on stock deliveries, the unfilled orders at the end of the month as shown by this report furnish useful data to use in production control. It is

CHART XL

REPORT ON CO-ORDINATION OF SALES AND PRODUCTION

Group or Class	Estimated Sales	Estimated Pro-duction	Percent of Pro-duction to Sales	Actual Sales	Revised Pro-duction Quota	Delivered to Stock (Actual Pro-duction)	Balance of Quota not Delivered or Excess Delivered	Orders in Factory	Balance not Ordered or Excess of Ordered over Quota

possible that a large amount of unfilled orders represents poor production management. In some cases these unfilled orders may be due to traffic mismanagement, to poor warehouse control and operation, to general trade depression, or to strikes and similar causes. In each case the data given in the report as to outstanding unfilled orders presents material for executive judgment, executive orders, and executive discipline and control. Such a budget and reporting system makes use of sales, inventory, and production accounts as a basis for future plans. The reports under such a system offer comparisons between estimated sales and estimated production, and actual sales and actual production. Such reporting makes constant use of accounts, and the requirements of the reports to be made determine what grouping of sales accounts should be followed. Similarly reporting requirements indicate the analysis to be followed in classifying inventory accounts and cost sheets.

Every functional officer of a factory has his own particular interest in the showing made in the monthly report of delivered and undelivered orders under the monthly quota. The officer in charge of the employment of labor studies the outstanding orders and quota balances with reference to labor that may be needed in meeting rush deliveries into stock. The traffic manager is vitally interested in outstanding orders since the amount for a given item may or may not indicate the necessity for action as to terminal facilities, warehousing, reloading, and the like. The advertising manager notes with concern the balances in quotas for which orders have not been placed since such balances may indicate a departure from advertised promises of service. Or the monthly report may show production in excess of quotas and may indicate to the sales manager the necessity for extra efforts to move the surplus inventory. Of course the treasurer is interested in the amount of outstanding orders and the problem of financing their production.

The monthly report discussed in the foregoing paragraphs furnishes the basis for immediate management decisions. It also provides a progressive month-by-month commentary on the accuracy of the estimating and planning in the business. Such monthly reports reveal errors in business judgment and make for better estimating for the next budget period.

QUESTIONS FOR CLASS DISCUSSION

1. "Unless there is substantial evidence that a market exists for a specific product which the business will be qualified to produce . . . . the business should not be organized." How can the existence of a market be determined before a business is launched?
2. Make a list of the factors which will need to be considered in determining the wisdom of discontinuing the production of a commodity which has been produced for a number of years.
3. "Some articles may be complementary to other articles and a change in the design of one may necessitate a change in the design of others." Illustrate.
4. "It may be necessary to sell some articles at a loss in order to offer a 'complete line' to the customer so he will buy other articles on which a satisfactory profit is earned." Illustrate how standards and records can be used to determine the advisability of continuing the production of an article of this kind.
5. "A new or rapidly expanding company may find it expedient to procure equipment which is beyond its current needs." What factors will need to be considered before deciding to do this? How will standards and records be used in making this determination?
6. "There are certain expenses which go on even when the plant is idle." Illustrate. How does this fact affect the production program?
7. The president of the X Company says ,"Our chief difficulty in trying to place our business on a profitable basis is due to the fact that our production is so irregular." Why would this affect the profits of the business? What factors may cause such irregularity? What remedies would you suggest?
8. Is it possible that a manufacturing firm may purchase finished goods? If so, under what conditions should this be done and how should the items to be purchased be determined?

9. "It may also be that the sales estimate is such that it does not provide for a well-balanced production program." What is a "well-balanced production program"?
10. "In so far as possible a manufacturing business should select its machinery and equipment so that it will be well balanced and flexible." What does this mean?
11. The sales of the X Manufacturing Company are subject to seasonal fluctuations. About 50 per cent of its sales are made in January and August and the remainder are scattered through the other ten months of the year. In what way will this affect its production control? What factors will have to be considered in planning its production program?
12. What factors should be considered in determining the desirability of purchasing new equipment needed to produce the goods called for by the sales program?
13. The sales manager and the production manager disagree concerning the production of some items and disagree concerning the quantity which should be produced of other items. What factors should be considered in determining which is correct? As a practical matter of organization routine how should such disputes be settled?
14. "It is not an easy matter to co-ordinate sales possibilities with production capacity. In fact it is one of the most difficult of administrative problems." State reasons why it is difficult.
15. In what way is the control of production on special orders different from the control of production for stock?
16. "The policy to be followed in handling special orders—whether they are to be given right of way or used only to take up unused time—will have a considerable bearing on the planning for their control." Why? Under what conditions may each of these policies be followed?
17. In the King Manufacturing Company the production budget is prepared by the controller and sent by him to the production department for enforcement. What is your opinion of this procedure?
18. The James Manufacturing Company has five factories located in different cities. In what way does this affect the preparation and enforcement of its production budget?
19. Explain the uses which may be made of the information shown in Chart XL. Explain how the information shown in each column will be obtained.
20. "In the manufacturing business all roads lead back to the factory. The size of the business is limited by the production capacity. There can be no doubt of that. Therefore, planning from the viewpoint of admin-

istration of the entire business must start with the factory." What about it?

EXERCISE NO. 38

The Dollmer Machine Company has its general offices at Chicago and has two factories, one located at Chicago and the other at St. Louis. The general officers of the company are as follows: president and general manager, treasurer, vice-president in charge of production, vice-president in charge of sales, and controller. The general officers are all located at the general office in Chicago. At each factory there is a works manager who reports to the vice-president in charge of production. There are also the other usual subsidiary officers.

The company manufactures three types of patented lathes. It manufactures lathes in anticipation of sales, and deliveries to customers are made from stock. After considerable experimentation the production department has determined that by slightly changing the lathes many of the piece parts of which the lathes are composed will be interchangeable as between the three types. The changes in the lathes will not affect their efficiency.

The accounts of the company for the years 1919 and 1920 show the following:

	1919	1920
Lathes Delivered:		
Type 1	$87,000	$93,000
Type 2	98,000	95,000
Type 3	58,000	64,000
Sales Allowances:		
Type 1	3,400	4,500
Type 2	2,800	3,500
Type 3	4,400	3,200
Gross Profits:		
Type 1	26,000	28,000
Type 2	33,000	30,000
Type 3	11,000	14,000

The turnover of daily average inventory of finished stock (to cost of lathes delivered) was as follows:

	1919	1920
Type 1	2.25	2.75
Type 2	1.00	1.50
Type 3	2.80	3.00

The president of the company requests you to prepare for his use the following:

1. A finished stock quota for the year 1921. He states that the sales allowances, and gross profits for the year 1921 are expected to show the same respective increases and decreases over the year 1920 as the year 1920 shows over the year 1919. He thinks the average of the turnover of the years 1919 and 1920 will be a fair turnover for the year 1921.

2. A revised finished stock quota giving effect to the seasonal variation in volume of sales. The accounts show that the sales during the year 1920 were by quarters as follows:

	January–March	April–June	July–September	October–December
Type 1	32,400	26,000	18,000	16,000
Type 2	28,000	24,000	17,000	24,000
Type 3	19,000	17,000	10,000	17,000

The sales for the year 1921 are expected to show the same ratios of seasonal variations.

3. A statement of the effect on production control of the standardization of piece parts which is proposed by the production department.

Required

1. Prepare a report addressed to the president of the company giving the information he requests.

2. As a final section of the report offer any criticisms you think appropriate of the method of determining finished goods requirements which the president has requested you to use in your report and outline the procedure you think desirable for the company to follow.

REFERENCES FOR FURTHER STUDY

1. Jones, *Administration of Industrial Enterprises*, chap. viii.
2. Marshall, *Business Administration*, chap. vi.
3. Church, *The Science and Practice of Management*, chaps. ii and iii.
4. "Factory Budgeting Plan Grown Out of Ten Years' Experience," *Factory*, February, 1923.

CHAPTER XXV

PRODUCTION PROCEDURES

Need for Production Procedures

The enforcement of the production program necessitates the establishment of a definite routine for the scheduling of production. There must be a procedure providing for the initiation of production of a certain number or quantity of articles each week and each month, so that the total called for by the production program will be completed by the end of the year, and sufficient will be on hand throughout the year to meet the demand of customers. In a similar manner, it is necessary to establish standard procedures for the procurement and use of materials, labor, and equipment. Running a factory without such procedures is similar to running a train without a time table.

Relation of Production Planning to Production Procedures

A considerable change has taken place during the last quarter of a century in the method of directing and controlling factory operations. Formerly, the principal responsibility for planning and controlling production operations was placed on the foremen of the manufacturing departments. Under the old plan of management, the foreman selected the workmen for his department, gave them whatever training they received, and discharged them at will. He took the materials he desired from the storeroom in whatever quantities he thought necessary, planned the way in which the necessary operations should be performed on them, and scheduled them through his department in whatever order he desired. He was also responsible for the layout of the machines in his department, and for the direction of all the manufacturing operations performed in the department.

The exponents of "scientific management" very early decided that the tasks imposed on the foreman of a department were so numerous and varied in nature that it was impossible to find any one man capable of performing all of them properly. They made an analysis of production activities, and decided that the production of any product consists of three stages:

1. Determining *what* is to be produced—what materials are to be used and their disposition in the article to be produced. They thought there should be a separate department, known as the engineering or designing department, which should be responsible for this.
2. Determining *how* it is to be produced, and when the various steps incident to its production are to be taken. They thought there should be a separate department, known as the *planning* department, which should be responsible for this.
3. Performing the physical work in accordance with the plans of the designing and planning departments. This they thought to be the function of the manufacturing department under the control of which the foremen of the manufacturing departments would be.

We are primarily interested in the work of the planning department, here, for it is through this department that the production procedures are carried out.

> Briefly stated its functions are so to plan and control the processes of production that the personnel and facilities of the plant, physical and financial, will be utilized to the best and fullest advantage, that the work will be done correctly and economically, and that deliveries will be made on time. In the planning department is assembled practically all of the clerical work which in a plant run under old-style management is done here and there in the manufacturing departments either by clerks, the foremen or even the workmen themselves. It is the repository of all data and working records required for the planning and control of the work in the plant.[1]

The planning department prepares the schedules on which the operations are to be performed, and issues production orders

[1] H. K. Hathaway, "On the Technique of Manufacture," *Annals of the American Academy of Political and Social Science*, XXXV, 149.

directing the commencement of work. It receives reports which enable it to know the progress of the work through the factory, and it directs what is to be done if for any reason the work must be delayed at any time. It thus directs and controls the operations performed on the goods in process.

The organization of the planning department varies to a considerable extent from business to business. The terminology employed to describe its units of organization also varies. For the purposes of the following discussion, we will assume a simple organization consisting of three divisions or sections:

1. The *balance of stores section*, which is responsible for the maintenance of the records required to control inventories.

2. The *production-order section*, which is responsible for issuing production orders authorizing the manufacture of goods, and issuing the "suborders" which are supplementary to the production orders.

3. The *factory-schedule section*, which is responsible for scheduling the production orders and controlling the operations performed on them while they are in the factory.

Relation of Inventory Records to Production Planning

The manufacturing process begins with the decision of the management, acting through the production department, that the present inventory will be exhausted by the time additional goods can be produced. This decision may be arrived at in various ways, depending on the volume and nature of the operations of each particular plant, and also depending on the form of production control employed.

In a small manufacturing business, where it is possible for the owner or manager to supervise actively all operations, a decision that a certain product shall be manufactured might rest upon the following considerations:

1. The manager knows from past records that sales of Item A are approximately 6,000 pieces a year.

2. The finished product in reasonable quantities can be produced in sixty days after the factory is directed to commence production.

3. By looking over the finished stock the management estimates there are now approximately 1,000 pieces available for sale.

4. If sales average about 1,000 pieces every sixty days (annual sales, 6,000), and if it takes about sixty days to produce a lot of 1,000, then since there are now approximately 1,000 pieces available, production should be started on 1,000 more, because by the time the new lot is produced the 1,000 pieces now available will have been sold.

Such rough and unaided approximating is possible where the business is small, and where the management of the business has only a few different items to think about. In a large business, however, which manufactures several hundreds or even thousands of items, it is impossible for the production manager to remember all the information necessary for a decision to manufacture a certain product. Consequently, it is necessary to have records to provide information on which the manufacturing operations can be based. Such records have come to be known as perpetual inventory records, stock records, stock ledgers, or balance of stores. Many manufacturing firms refer to these as "balance of stores," and they will be so termed in this discussion.

Form of Inventory Records

The simplest form of a balance of stores record is shown in Chart XXIV (p. 428). This form of record shows the amount of goods received in stock, the amount sold, and the balance on hand at all times. The information shown in the "Sold" column is useful in preparing an estimate of future sales. With this data available, the same calculations can be made as were suggested above, where the business is small and production is regulated without the aid of inventory records.

In most manufacturing firms it is desirable to have additional information to that provided by Chart XXIV. For example, it may be assumed that J. H. Brown orders 4,000 pieces of Commodity A, 3,000 pieces of Commodity B, and 2,000 pieces of Commodity C. By an inspection of the stock records, it is found that there are now on hand 1,000 pieces of Commodity A, 5,000 pieces of Commodity B, and 4,000 pieces of Commodity C. It will be three weeks before it is possible to receive additional pieces of Commodity A from the factory. It may be impracticable because of freight charges or other reasons to ship B and C now and A later. Therefore, shipment of B and C is delayed until A becomes available. Under these conditions there should be some method of indicating on the inventory records that 3,000 pieces of Commodity B and 2,000 pieces of Commodity C are sold, although they are still in stock. If this is not done, these items which are now in stock may be shipped to other customers, and by the time A becomes available, either B or C, or both, may not be in stock, thereby delaying shipment to the customer who has the first right to the goods by reason of the prior receipt of his order.

Again, if the order of Brown calls for 4,000 pieces of Commodity A and only 1,000 are on hand at the time the order is received, it should be shown on the inventory record that there is now a shortage of 3,000 pieces so that production can be started on a sufficient number of pieces to make up this shortage and leave an inventory of the size it is desired to carry. Unless the inventory records are designed to show the receipt of the order from Brown, the shortage which it produces in Commodity A will not be shown, and by the time goods are produced to fill Brown's order, other orders will have been received which may cause the shortage to continue indefinitely.

To eliminate this difficulty, inventory records have been devised which provide for a "Reserve" or "Applied" column where entry of the customer's order is made immediately upon its receipt. This form of balance of stores record is shown in Chart XLI (p. 530).

To familiarize the student with this type of balance of stores record, the entries appearing thereon will be explained in detail. Assume that on the day the balance of stores record is opened, April 1, a physical inventory shows that there are 12,500 pieces in the stockhouse bin. This quantity is entered in the fourth or "Balance" column. After looking through the files of customers' orders, it is found that all orders for this particular commodity have been filled, so that the quantity of 12,500 is available

CHART XLI

BALANCE OF STORES

Item——1-Inch Cast-Iron Elbow, Beaded

Date	Received	Issued	Balance	Applied	Available or Shortage
4-1			12,500		12,500
4-5				4,000	8,500
4-10		4,000	8,500		
4-15				1,000	7,500
4-20				4,000	3,500
4-25		1,000	7,500		
4-25		4,000	3,500		
4-30				1,000	2,500
5-1	10,000		13,500		12,500
5-2		1,000	12,500		

for sale. This quantity would be entered therefore in the "Available or Shortage" column. On April 5 an order is received for 4,000 pieces, and this order is assigned the number "E6784." The number "4,000" is entered in the "Applied" column, and subtracted from the amount in the "Available or Shortage" column, thereby reducing the balance in that column to 8,500. On April 10 the quantity specified on order E6784 is shipped, and an entry is made in the "Issued" column, reducing the "Balance" column to 8,500. The other entries for orders received, balance on hand, and quantities shipped are similar to the ones described above. On May 1, 10,000 pieces of stock are received from the factory. This quantity is entered in the "Received" column, and added to the quantity in the "Balance" column and the "Available or Shortage" column.

The value of the "Applied" column lies in the fact that as soon as a customer's order is received, it is entered in the "Applied" column, and is subtracted from the balance of the "Available or Shortage" column, which reduces the quantity available for sale, and so gives notice when stock is being depleted, regardless of whether the customer's order has been shipped or not.

There is one situation for which Chart XLI does not provide. Referring to the entries in this Chart, it will be seen that between April 5 and May 1 the "Available or Shortage" columns shows a balance of less than 10,000 pieces. If it is assumed that 60,000 pieces of this item are sold annually, and that it takes on an average sixty days from the time an order is issued to the factory to produce additional items until they are delivered into stock, it will be realized that when the balance available falls to 10,000 items, it is desirable to order additional production, since the 10,000 on hand will all be sold by the time the items ordered from the factory are received into stock. Consequently when the balance on hand fell to 8,500 in April, it would seem that a new order should be issued to the factory. But the entry under date of May 1 shows that during all this time there were 10,000 pieces in process of manufacture. Obviously, it would have been improper, therefore, to have ordered additional items from the factory under these circumstances.

The balance of stores record, therefore, should provide a space where record can be made when a production order is entered. Chart XLII (p. 533) shows a balance of stores record which provides such a column. If this form is studied in connection with the discussion given with reference to Chart XLI, it should be understood without difficulty.

If desired, the amount shown in the "Ordered" column may be added to the amount in the "Available" column at the time the production order is issued. This is on the theory that it will be available by the time it is needed. This practice makes it easier for the record clerk to ascertain when a new production order should be issued since it is only necessary for him to compare the amount in the "Available" column with the minimum. Otherwise, he must ascertain the undelivered items in the "Ordered" column, and add these to the balance in the "Available" column before making the comparison.[1]

It will be noted that in Chart XLII the extreme right-hand column is headed "Available or Shortage." If an order is received which calls for a greater quantity than is available, the difference between the quantity available and the quantity on the order is the shortage, and is entered in red ink.

Establishment of Maximum, Minimum, and Quantities to Orde

The foregoing discussion has been concerned mainly with a description of the form of the balance of stores record and th method of making entries on it. The value of this record as a means of inventory control has been indicated by this discussion This control is of greatest value, if it is made as nearly automati as possible. To accomplish this, it is necessary that certain limit be established which will show those working on the stores recor when orders should be issued for additional production, an should inform them as to the amount for which these order should be issued. This is accomplished by establishing max mum, minimum, and quantities to order.

Maximum and minimum limits should be established on eac item of goods carried in stock. The maximum states the amour above which the inventory should not be permitted to go excep by special permission of an executive officer. The minimu states the amount to which the stock of an item can be deplete

[1] See Chart XLV, p. 569.

CHART XLII

BALANCE OF STORES SHEET

Date	Ordered		Received		Issued	
	Quantity	Ord. No.	Quantity	Price	Quantity	Ord. No.
4-1						
4-1	10,000	672				
					4,000	E6784
					1,000	W8270
					4,000	N9274
		672	10,000			
5-2	10,000	1,004			1,000	S4620
		Car. Fwd.				
Min. Stock 12,500	Max. Stock 22,500		Quan. to Order 10,000		Unit. Wt. .5	
Item 1-Inch Cast-Iron Elbow, Beaded						

Date	Balance	Applied		Available or Shortage
		Quantity	Ord. No.	
	12,500			12,500
4-5		4,000	E6784	8,500
4-10	8,500			
4-15		1,000	W8270	7,500
4-20		4,000	N9274	3,500
4-25	7,500			
4-28	3,500			
4-30		1,000	S4620	2,500
5-1	13,500			12,500
5-2	12,500			
No. of Pieces Sold 1918, 125,000 1919, 130,000 1920, 12,000				
Group 101		Commodity No. 101,006		

before placing a production order to replenish it. When sales orders reduce the stock to the minimum, a production order should be issued for the amount decided upon as the "quantity to order."

The following factors should be considered by the production department in the establishing of maximum and minimum and quantities to order:

1. Production period
2. Probable sales
3. Margin of safety
4. Economical run

The production period is the time required from the placing of an order on the factory for production until the finished goods are delivered to the storehouse. Obviously, this period cannot be established with exactness, and will vary according to the quantity ordered, since it will take longer to produce 10,000 items than to produce 1,000 items. Sufficient data can be collected, however, to estimate the approximate length of this period for different quantities of production. In the absence of better statistics, it may be necessary to use as the basis of computation the average production period as shown by the records of past production. As the planning work proceeds, it will be possible to obtain data to serve in correcting errors which may have been made in the original calculations.

The expected sales are stated in the sales budget. From this estimate it is easy to compute the expected sales for the production period. To illustrate: If the production period is 30 days and the quarterly sales estimate on Item Y is 600 units, the probable sales for the production period are 200.

If the probable sales and the production period could both be forecast with exactness, it would be satisfactory to establish a minimum just equal to the probable sales of the production period, and to issue an order for the same amount as the minimum when the minimum is reached. To illustrate: The production period is 30 days and the probable sales for the period are 200.

When the balance on hand reaches 200, the factory will be directed to produce 200 more. The factory will produce these and deliver them to stock in 30 days just as the last of the goods on hand are sold. Experience has shown that neither probable sales nor the length of the production period can be determined with exactness. Estimated sales may be oversold; strikes, breakdowns, and delays in deliveries of raw material may interfere with the normal course of production. It becomes necessary, therefore, to have a quantity of finished goods on hand in excess of the probable sales for the production period at the time the production order is issued. This excess may be termed the "margin of safety." This margin is usually estimated at from 10 to 25 per cent of the probable sales for the production period. Its amount will vary in different firms and may well vary on different items in the same business.

If a business produces two or more commodities, or two or more sizes of the same commodity, it is usually possible to use the same machines to manufacture the different commodities or the different sizes. When the commodity or size of commodity on which a machine is working is changed, it is frequently necessary to "adjust" the machine. In making this adjustment, considerable time with the consequent cost may be required. This cost must be added to the cost of the articles manufactured. If the machine is used to manufacture only a few pieces at a time, and the cost of adjusting the machine is added to the cost of the work on these pieces, it may make the unit cost of the work unduly high. For example, the X Machine may be used in manufacturing Commodity Y and Commodity Z. It costs $5.00 to change the X Machine after it has been used on Commodity Z, and put it in a condition to work on Commodity Y. One hundred pieces of Commodity Y are being manufactured, and the operation performed on these pieces by X Machine costs $4.00, or four cents apiece. But when the $5.00 for adjusting the machine is added, the total cost is $9.00, or nine cents apiece. If, instead of 100 pieces, 1,000 pieces are manufactured at one time, and it is assumed that the cost per piece of operating the machine is the same as for the 100, the total cost of machine operation plus adjusting charge will be $40.00 plus $5.00, or $45.00. This makes the total cost per piece $0.04½. It can be seen, therefore, that the more pieces "run through" the machine at one time, the less per piece will be the cost of adjusting the machine. In planning production in a business where machines must be adjusted each time a new order goes through, it is necessary to have each order for a sufficient amount that the cost of adjusting the machines will not make the unit cost too high. The minimum amount which can be produced at a reasonable cost is termed the "economical run." In establishing the quantity to order it is essential that it be made sufficiently large to constitute an economical run.

The "probable sales" for the production period are the quantity expected to be sold during that period. The margin of safety is the amount it is thought necessary to carry in addition to insure against contingencies. Therefore, the quantity to which stocks can be depleted before a production order is started is the sum of the probable sales for the production period and the margin of safety. This is the "minimum." When the stock of any item is reduced to this quantity, a production order is issued for the "quantity to order." The product specified on the production order passes through the production process and arrives at the storeroom, ideally, when stocks have been reduced to the *margin of safety*.

Quantities to order must be established under two sets of conditions. These conditions and the procedure in each case are as follows:

1. Where the probable sales for the production period is less than the amount of the economical run, the latter amount becomes the quantity to order. To illustrate: The production period for Commodity H is 30 days and the probable sales for this period is 200. It has been found, however, that to produce

less than 500 pieces at a time causes an excessive piece cost. The economical run, therefore, is 500, and this becomes the quantity to order. When the minimum of 250 is reached, a production order will be issued for 500.

2. Where the amount of the probable sales for the production period is equal to or greater than the amount of the economical run, the former amount becomes the quantity to order. Under the conditions stated in the preceding paragraph, if the economical run was 150 instead of 500, then the quantity to order would be 200.

The maximum is the sum of the minimum and the quantity to order. It is the danger-mark which must not be exceeded.

Enforcement of Minimum and Quantities to Order

There is a separate balance of stores card or sheet kept by the balance of stores section of the planning department for each item of goods carried in stock. The minimum and quantity to order are written on the face of the card as shown in Chart XLII. Each time the balance-of-stores clerk posts an entry to the balance-of-stores record, he extends the balance and compares it with the minimum. Whenever the balance falls to the minimum, the clerk makes out a "notice of minimum." The balance-of-stores clerk passes the notice of minimum to the *production clerk*, who is head of the production-order section of the planning department.

The Production Order

The production clerk, upon the receipt of the notice of minimum, issues a production order for the quantity to order.

In addition to the production order, the production clerk may prepare the following:

1. *Move* orders, issued to the *transport* department, which is responsible for moving materials from place to place in the factory on the order of the planning department.

2. Time cards, issued to the workmen at the start of each job. These are usually distributed to the *work racks* in the factory. They are placed in the rack in the order in which it is desired that the workmen perform the work, and serve to inform them when to commence each operation.

3. Operation orders, which show the operations to be performed to manufacture the articles called for by the production order. These serve as a basis for the instruction cards to be issued later.

4. Inspection orders, issued to the inspector advising him that the work is to commence, and indicating to him the various operations he may need to inspect as the work progresses.

5. Identification tags, which are attached to the materials at the time they are issued from the storeroom, and serve to identify them throughout the time they are in process.

All these orders and tags are attached to the production order, and are sent with it to the factory-schedule section of the planning department.

Balance of Stores for Raw Material

Balance-of-stores records are maintained for raw materials in the same form as for finished goods. Raw materials purchased are entered on these records from the invoices or from the reports of materials received. The materials issued to the factory are entered from the *move orders* issued to the transport department as previously explained, or material requisitions may be issued by the planning department which authorize the stores department to issue the necessary materials.

The balance-of-stores record for raw materials contains an "Applied" column the same as the record for finished goods. The entries in this column may be made in two ways. The production order with the *move orders* attached may be sent to the balance-of-stores section after it is prepared by the production-order section, and entries made to the stores records from the move orders. The second method is to have a bill of materials prepared by the production-order section which states the materials required for the satisfaction of the production order, and have this sent to the balance-of-stores section for entry on records. We are not primarily interested in the procedure by which this is done, but only in emphasizing that the materials required by the production order should be reserved on the record as soon as the order is issued. The bill of materials or the move orders show the total materials required by all the departments in the manufacture of the order. Since the production order passes through one department at a time, it may not reach some departments until several days after it is issued, and the materials for these departments will not be taken from the storeroom until needed by the departments. It is also possible that the order will not be scheduled for production immediately after it is issued, for there may be other orders ahead of it which must be completed before machines will be available for use. Under either of these circumstances if materials are not reserved, they may be used on other orders and not be available when they are needed for the order which has priority of claim on them.

Minimum and quantities to order are established for raw materials in the same manner as for finished goods. The only difference in the procedure for operating balance-of-stores records for raw materials and the balance-of-stores records for finished goods is that when the minimum is reached on the former record, a purchase requisition is prepared and sent to the purchasing agent, while in the latter case a requisition for production in the form of a *notice* of *minimum* is issued to the production clerk. The reason for this difference is easily seen, since additional finished goods are obtained from the factory, while additional raw materials are obtained by purchases from vendors.

Production Schedules and Instructions

When the factory-schedule section receives the production order with the various suborders attached, it draws up for each operation required in the production of the goods called for by the production order an instruction card describing in detail just what the operation is to be, the method to be followed, and the tools to be used. This department will have in its records specifications and drawings which will enable it to judge the operations necessary to produce each product the company manufactures. Standard instructions will be prepared for all the articles produced for stock, and this will prevent the necessity of preparing instructions for each production order.

At the same time that the instruction cards are prepared, there will be a tool list prepared showing the tools necessary to produce the goods called for by the order. The tools available will be ascertained, and if purchases are necessary, provision can be made for these before production commences. When the instruction cards and tool lists are completed, they are attached to the production order, and it is then placed in the "route files." The production orders are placed in these files in the sequence in which it is desired that work be commenced on them.

The factory-schedule section maintains a bulletin board showing the location of all orders which are in the shop. It shows not only the department in which the goods are, but also the machines which are being used on them. As soon as goods are transferred from one machine to another, a report is made to the factory-schedule section, and a change is made on the bulletin board to indicate the transfer. By an inspection of this board it is possible to see when machines are available so that a new order may be started through.

When it is decided to initiate work on a new order, the production order with the attached forms are removed from the route files. The move orders are sent to the transport department, the time tickets are sent to the work racks, the instruction cards to foremen and workmen, etc. The production order is entered on the bulletin board so as to indicate the machines which will be occupied with its production. As reports come in showing the progress of the order through the factory, the proper changes will be made on the bulletin board. When the goods are delivered to the stockroom, a finished stock report will be made to the factory-schedule section, which will then remove the finished order from the board.

Variations in Production Procedure

Production procedure varies widely from business to business. In the foregoing discussion, only the outline of a possible procedure is given. No attempt has been made to show the details involved, nor the possible variations which may exist. If the student has a comprehensive picture of the production process and the general plan by which control is exercised over it, he will have sufficient for his present purposes. Details at this stage of his study would serve only to confuse.

Illustration of Production Procedures

A large corporation manufacturing almost entirely for stock has its planning department organized into four sections: (1) sales-order section, (2) balance-of-stores section, (3) factory-order section, and (4) factory-schedule section. The procedures of each section are as follows:

I. Sales-order-section procedures
   1. Order "Dressing"
      All customers' orders are received by the sales-order section. Each order is carefully scrutinized for errors in specifications. If the order specifies items to be purchased a purchase requisition is prepared
   2. Registration
      Customers' orders are registered numerically by divisions and branches. Sections of orders for the different classes of product are noted on the register
   3. Routing
      Orders are sent to the traffic department for routing. Routing is noted in hektograph ink
   4. Copying
      The following copies are prepared on the "Ditto" machine from the work copy:
      a) Order-file copy
      b) Sales-office promise copy

5. Order file

   From the order-file copy statistics of orders received by groups and classes of product are prepared. The order-file copy is filed in binders indexed by sections for divisions and branches. In each section customers' orders are filled alphabetically by name

6. Works copy

   The works copy is sent to distribution clerks who prepare distribution tickets for each item on the order. The works copy is filed by customers' name in the shipping file

7. Distribution tickets

   Distribution tickets prepared from the works copy give the following information:

   a) Quantity, size, and description of the item
   b) Customer's name
   c) Order number

   Distribution tickets are sent to the balance-of-stores section where they are entered on balance-of-stores sheets. Items available are stamped "Available" and short items are stamped "Short"

   "Available" tickets are separated from "Short" tickets and sent to the sales-order-section shipping clerk, where they are attached to the works copy

8. Promises

   The sales-office promise copy and "Short" distribution tickets are sent to the factory-schedule clerks. Dates when product will be delivered to the stock-house are promised, and entered opposite each "Short" item on the sales-office promise copy and on distribution ticket

   Shipping promises are only made when requested by the sales office. In no case are promises made for a specific date if shipment cannot be made within sixty (60) days. Such promises are made by months

9. Shipping schedule board

   After delivery dates to the stock-house have been promised on the various items by the factory-schedule clerks, the sales-office promise copy is sent to the sales-order-section shipping clerk

   On the basis of the number and weight of items "Available," the promises of delivery to the stockhouse of "Short" items, and the urgency of the order, the sales-order-section shipping clerk decides whether the order should be shipped "partial" or "complete," and the date on which shipment should be made. The order number is entered on the shipping schedule board under the date or month when shipment will be made

On the sales-office promise copy will be noted the shipment date and "partial" or "complete." If the order is to be shipped "partial," the items to be shipped are checked "partial"

10. Distribution of production

"Short" distribution tickets are filed in cases by size and kind of product in the order-of-promise dates. Upon receipt of production reports from the factory-order section, distribution clerks sort out tickets for the quantity of the size and kind of product produced. Tickets pulled are stamped "Available" and sent to the sales-order-section shipping clerk

11. Shipment of "available" items

"Available" distribution tickets are attached to the works copy and sent to the stockhouse for packing and shipping. When shipping papers are returned from the stockhouse, items shipped are stamped "Shipped" on the order-file copy. Shipments of items are entered on the back of the works copy, and after billing, the works copy is returned to the shipping file

II. Balance-of-stores-section procedures

1. Balance-of-stores records

Balance-of-stores sheets maintained on each size and kind of finished stock will provide for

a) Name of item
b) Minimum quantity
c) Quantity to order
d) Maximum quantity
e) Unit weight
f) Quantity to order
g) Quantity received in stockhouse
h) Quantity shipped
i) Balance on hand
j) Quantity applied
k) Available or shortage

2. Operation of balance-of-stores records

a) "Applied" column

Distribution tickets received from the sales-order section are sorted by size and kind, and entered in the "Applied" column on balance-of-stores sheets *b*) "Shipped" column

When items have been packed, distribution tickets are returned to the balance-of-stores section, and entered in the "Shipped" column

c) "Received" column

Production is entered in the "Received" column from production reports prepared by the factory-order section

3. Initiating of factory-production orders

All balance-of-stores sheets will be examined once a week, and the condition of the stocks noted. In each case where the application of stocks on sales orders has depleted stocks to the minimum, a notice of minimum will be issued and sent to the factory-order section

In cases where a production order has been issued, but the product has not yet arrived at the stockhouse, if the application of sales orders has reduced the expected production to the minimum, another notice of minimum will be issued

III. Factory-order-section procedures

1. Process cards

Process records will be maintained on each size and kind of Wilson Standard Product. Each process card will show

a) The department in which the operation is to be performed

b) Machine or machines on which processes can be performed

c) Machine capacities

2. Bills of material

The factory-order section will maintain as a permanent record a bill of material for each size and kind of standard product. Bills of material will show component parts of the product, and whether such parts are manufactured or purchased

3. Preparation of factory-production orders

Factory-production orders will be issued for the manufacturing of finished product. Subproduction orders will be issued on job time cards for the various parts and operations

a) The factory-production order

Upon receipt of the notice of minimum from the balance-of-stores section, the factory-order section will issue a production order. Factory-production orders will be written in hektograph ink so that a copy can be made for each manufacturing department affected by the order

A number will be assigned to each production order. This number will be entered on the notice of minimum, and the notice of minimum returned to the balance-of-stores section for entry on balance-of-stores sheets

b) Condition-of-equipment notice

Two condition-of-equipment notices will be prepared for each manufacturing department affected by the production order

c) Job time cards

Job time cards needed for each process on each part of the product will be prepared by the factory-order section from process records. Job time cards will show

(1) Production-order number
(2) Quantity, size, and description
(3) Part name and number
(4) Operation name and number

Where a rate has been set for the preparation of a machine, preparation job time cards will be prepared

d) Inspection job cards

On their face, inspection job cards carry information identical with that shown on job time cards. On the reverse side space is provided for the entry of

(1) Quantity of goods produced
(2) Quantity of the various kinds of scrap produced

e) Stores-issue tickets

From bills of material the factory-order section will prepare stores-issue tickets for the requisitioning of raw materials from stores required in the production of goods specified on the production order. All materials will be so requisitioned except foundry materials. Stores-issue cards are sent to raw materials balance-of-stores records to be entered in the "Applied" column on balance-of-stores sheets. If material is available, cards are stamped "Available," if material is short, cards are stamped "Short." "Available" cards are returned to the factory-order section. "Short" cards are held until material is "Available," and are then returned to the factory-order section

4. "Specials" and "Service" orders

"Specials" and "Service" orders will not be entered on balance-of-stores sheets. Such orders will be sent directly to the factory-order section where a production order will be prepared

In the case of "Specials," the factory-production order will bear the customer's order number. "Service" orders will bear a separate series of numbers

5. Production-order record

When a production order is issued, the factory-order-section clerk who has charge of production orders for that particular line of product enters on the production-order record

a) Production-order number
b) Date issued
c) Machine number
d) Operation
e) Number of job time cards issued
f) Quantity ordered
g) Size
h) Description

All Suborders on a production order are entered so that operations follow in sequence

The factory-production order, with job time cards, inspection-job cards, and stores-issue tickets, are sent to the factory-schedule section

When operations on the production order have been performed, and inspection-job cards are returned to the factory-order section, the following information is entered on the production-order records

a) Good product produced
b) Schedule time
c) Actual time
d) Date scheduled
e) Date started
f) Date completed

6. Production reports

When the product of a manufacturing department is ready for transfer to another production department or to the stockhouse, transfer tickets are prepared showing:

a) Production-order number
b) Quantity to be transferred
c) Size and description of product
d) Department from which transferred
e) Department to which transferred

f) Date transferred

g) Initials of inspector transferring

The receiving production department or the finished stockhouse will check items transferred by weight and/or count, initial the transfer ticket and send it to the factory-order section

From these transfer tickets, the factory-order section will prepare daily department-production reports of good product

Daily production reports are sent to the accounting department where totals are accumulated for the period for entry on accounting records

Daily production reports will show the various kinds of scrap produced by the various groups of product. Scrap is allocated to tonnage of goods produced

IV. Factory-schedules-section procedures

1. Department schedule boards

The factory-order section will deliver to the factory-schedule section

a) A hektographed copy of the factory-production order for each production department affected

b) Two condition-of-equipment notices for each production department

c) Job time cards for each process on each part of the product

d) Inspection-job cards for each process

e) Stores-issue tickets for each kind of material to be requisitioned from stores as shown by the bill of material

The factory-schedule section will place the job time cards, inspection job cards, and stores-issue tickets on file, and will forward the hektographed copies of the factory-production order and the condition of equipment notices to the respective manufacturing departments. As soon as possible, department foreman will return one copy of the condition-of-equipment notice to the factory-schedule section stating condition of equipment and data when processing can be begun if equipment is out of order

If the condition of equipment is satisfactory, the factory-production order will be translated into time required for each operation. The time required for the completion of the various processes will be shown under each machine number

When a production order is scheduled, the date of delivery to the stockhouse is noted on the face of the production order, and production orders are filed by size and kind of product

2. Promises

Promises when product will be delivered to the stockhouse are made for specific dates up to sixty (60) days in advance. If no production orders for the product has been scheduled for the sixty-day period, promises will be made by months

If promises are required, the sales-office promise copy and "Short" distribution tickets are sent to the factory-schedule clerks. Reference is made to scheduled production orders, and date of delivery to the stockhouse is entered opposite each "short" item on the sales-office promise copy and on distribution tickets

The quantity promised on sales order against the production order is entered on the reverse side of the production order. If no production order has been scheduled, a promise card is made for the size and kind of product, and promises are entered thereon. When a production order is scheduled, promises are transferred to the reverse of the production order

3. Daily production schedule

Daily the factory-schedule section will send to each manufacturing department job time cards, inspection-job cards, and stores-issue tickets for production orders which have been scheduled. Operations to be performed are listed on the daily production schedule, which is sent to the department one day in advance of the day on which processing is to be begun

4. Department control boards

Job time cards and inspection-job cards are placed in the control board by the control board clerk under machine numbers on which operations are to be performed

Stores-issue tickets are placed in a separate file so that materials can be requisitioned from stores before processing is begun

5. In-and-out racks

An in-and-out rack is to be maintained in each department in a place convenient for the workmen when arriving for and departing from work. Before workmen arrive in the mornings, the control board clerk will have placed in each employee's rack his inspection-job card assigned him by the foreman

The workman as he comes to the department will take the inspection-job card from his rack and proceed immediately to the machine specified and perform the operation as indicated

6. Inspection-job cards

   As an employee's work is inspected, entries are made on the inspection-job card. Upon completion of his job, the workman reports to the control board clerk, and a new inspection-job card is issued to him. Starting and stopping time is recorded on both inspection-job cards and job time cards

   When a job is completed, or at the end of the day, the control board clerk transfers the quantity of good pieces produced from the inspection-job card to the job time card

   Inspection-job cards serve as progress records

7. Route cards

   In departments where production does not follow standard processes, route cards are prepared by inspectors which show:

   a) Order number

   b) Quantity on order

   c) Size

   d) Description

   Route cards are attached to the material in process so that it can be easily identified

8. Finished-parts record

   For product which is made up of several parts, a finished-parts record is maintained in the manufacturing department. As parts are finished, quantities are entered in the columns provided. When parts are assembled, quantities are deducted so that the finished-part record becomes an inventory of finished parts on hand in the department

   Finished-part records are checked against actual quantities, and sent to the factory-order section. Before issuing a production order, the factory-order section decreases quantities shown on the notice of minimum by the quantity of parts shown on the finished-parts record.

QUESTIONS FOR CLASS DISCUSSION

1. From the point of view of administrative control, what are the essential differences between "traditional management" and "scientific management."

2. Is there greater or lesser need for standards and records under scientific management than under traditional management? Did standards and records develop the need for scientific management or the reverse?
3. Do you think scientific management as applicable to other departments of a business as to the production department? Why was it first developed in connection with production operations?
4. What is the relation of the controller to the work of the planning department?
5. Many companies do not have a planning department in fact, and many more do not have one in name. Does this mean these companies do not have an effective control of production?
6. To what extent is the method of production control outlined in this chapter applicable to the following types of businesses: (1) packing plant, (2) printing shop, (3) foundry, (4) flour mill, (5) soap factory?
7. The sales department estimates the sales for the year to be 20,000 pieces, and the production department has agreed that it can produce this amount. What further problem has the production department in planning the production for the year?
8. In what way may the balance-of-stores records be of value to the sales department in estimating sales?
9. The Long Manufacturing Company receives an order from the Blackwell Company for 2,000 pieces of Commodity A, 4,000 pieces of Commodity B, and 5,000 pieces of Commodity C. There are sufficient pieces of Commodities A and B on hand to fill the order, but there are only 2,000 pieces of Commodity C in stock. Because of the extra shipping charges involved in shipping separate small lots, it is not desirable to ship Commodity A and Commodity B at the time the order is received and Commodity C later. Therefore, it is decided to wait until additional pieces of Commodity C are received from the factory before making shipment. One week later 6,000 pieces of Commodity C are received from the factory, and it is decided to make shipment of the entire order. Upon investigation, however, it is found that shipments of A and B have been made to other customers, and that there are now not sufficient pieces of Commodity A and B on hand to fill the order of the Blackwell Company. This company has frequent experiences similar to this one. Outline in detail a procedure by which such conditions may be prevented.
10. The estimated yearly sales of Commodity O are 12,000 pieces. The average production period for this commodity is 30 days. The least quantity which can be manufactured economically is 500. It is thought

necessary to establish a margin of safety of 25 per cent of the probable sales. Explain what would be (*a*) probable sales, (*b*) minimum, (*c*) quantity to order for this commodity.

11. A sales order is received by the Jones Company from the Smith Company calling for 2,000 units of Article X, and 3,000 units of Article Y. Only 1,000 units of Article X are in stock when the order is received. Outline the complete procedure involved in filling this sales order and in the recording of the sale.
12. What factors should be considered in calculating (*a*) margin of safety, and (*b*) economical run?
13. What should be considered in establishing "quantities to order" for materials?
14. Explain the procedure followed by (*a*) the production-order section, and (*b*) the factory-schedule section.
15. What are the advantages and disadvantages of having the inventory records of materials under the following: (*a*) purchasing agent, (*b*) traffic manager, (*c*) office manager, (*d*) cost accountant, (*e*) production manager, (*f*) controller, (*g*) treasurer, (*h*) storekeeper?

EXERCISE NO. 39

The Winslow Foundry Company produces about one-fourth of its total output on special orders. The remainder is produced on long-term contracts which specify a minimum amount of purchases for each month and each year. Under the terms of these contracts the company agrees to maintain a sufficient inventory to fill immediately orders of purchasers up to the minimum amount. As a matter of accommodation, the company anticipates the orders in excess of the minimum, and maintains a sufficient inventory to meet these also.

The president of the company supervises the operations of the factory and the purchasing of materials. He decides what articles are to be manufactured, and in what quantities they are to be produced. He exercises a similar control over purchases. He has prepared graphs of the sales of the principal products of the company for several years. From these he has prepared a composite graph which he believes represents the normal sales curve for the year. Each year this curve is revised in the light of the past year's experience. At the beginning of each year he starts a sales curve for the year, and compares it with the normal curve. By this comparison he forecasts the sales for the next month, and on the basis of this sales forecast he forecasts the production requirements and plots a production curve. He places sufficient production orders to maintain the production curve. The production curve precedes the sales curve by the estimated length of the production period. In a similar manner, he plots a materials-purchased curve which precedes the production curve by the estimated length of the purchasing period. Purchase orders are placed on the basis of the materials-purchased curve.

The company does not maintain inventory records, and does not have a planning or production-control department. The president contends that neither of these are necessary. He says he watches production operations closely, and that the foremen are responsible for seeing that the production orders pass through the factory in proper sequence and with appropriate speed. He is especially proud of the method of production and buying control he has developed.

During recent months the company has incurred considerable difficulty in filling customers' orders. It is found that some items called for by customers under their contracts are not in stock, while there are large inventories of other items. Customers who send in special orders complain that they are required to wait an undue length of time before they are filled. It is contended by the sales department that the costs of the company are too high, and that, consequently, its sales prices are so high it is losing business to competitors which otherwise would be secured.

Required

Write a report to the board of directors stating your opinion of the present method of production control of the company, and stating what you think should be done to remedy the present situation.

EXERCISE NO. 40

The Atlas Turbine Company estimates its yearly sales of Commodity Y to be 300,000 pieces. The average production period for the company is fifteen days. The margin of safety is estimated to be 10 per cent of probable sales. An economical run for Commodity Y is 2,000 pieces. The records show that there are no unfilled sales orders at the beginning of March. A production order Number X26 for 13,750 pieces was issued on February 19. On March 1 the inventory on hand is 15,000 pieces. During March the following transactions take place:

March	1.	Inventory on hand	15,000
	1.	Sales Order A771 received	1,900
	1.	Production Order X27 issued	13,750
	5.	Sales Order A771 shipped	

March 6.	Goods called for by Production Order X26 received	13,750
10.	Sales Order F934 received	7,500
11.	Sales Order R2100 received	4,250
13.	Sales Order F934 shipped	
15.	Sales Order R2100 shipped	
16.	Sales Order A772 received	5,000
16.	Production Order X28 issued	13,750
17.	Goods called for by Production Order X27 received	
20.	Sales Order A772 shipped	
24.	Sales Order R2200 received	390
25.	Sales Order G873 received	500
	Sales Order F944 received	1,200
27.	Sales Order R2200 shipped	
	Sales Order G873 shipped	
28.	Sales Order A773 received	1,750
29.	Sales Order F944 shipped	
29.	Sales Order S100 received	2,250
31.	Sales Order A773 shipped	

Required

1. Draw up a form like Chart XLII.
2. Record the foregoing transactions on this form.

REFERENCES FOR FURTHER STUDY

1. Knoeppel, "Graphic Production Control," *Industrial Management*, November, 1918.
2. Hathaway, "On Technique of Manufacture," *Annals of the American Academy of Political and Social Science*, LXXXV, 149.

CHAPTER XXVI

MATERIALS CONTROL

Requisites for Materials Control

The effective control of materials used in production requires the following:

1. Determination of the probable material requirements and the establishment of a proper procedure for the procurement receipt, and storage of an adequate supply.

2. Establishment of a proper control over the issuance of stores when needed for production purposes.

3. Classification and recording of stores transactions to show the information needed for inventory control and for the ascertainment of production costs.

Determination of Material Requirements

The planning department should maintain an analysis of each of the products manufactured by the company which will show the materials required in its production. By the use of this analysis it is possible to estimate on the basis of the production budget the materials required to produce the goods called for by the production program. The preferable method of making this estimate is to take each item on the finished goods budget and calculate the amount of each kind of material required to produce it. To illustrate, the production budget calls for the manufacture of 2,000 units of Article X. The product analysis shows that it takes 4 pounds of Commodity Y to produce 1 unit of this article. Consequently, it will require 8,000 pounds of Commodity Y to produce the quantity of Article X called for by the production program. If each item on the production budget which requires the use of Commodity Y is considered in this manner, the total requirements for Commodity Y can be ascertained.

In some firms so many commodities are produced and so many different materials enter into each that it is difficult to estimate the material requirements in this manner. In such cases it may be expedient to obtain the ratio between the production volume for several periods and the volume of materials of each kind required for this production, and apply these ratios to the production budget of the current period to obtain the material requirements for the period. These estimates will be more accurate if separate ratios are calculated for the different classes of product manufactured. The reason for this is apparent, for different quantities of raw material are required for different classes of product, and the ratio between the volume produced in the different classes is not likely to remain the same during different periods.

The procedure followed by one firm in co-ordinating production and purchases is stated as follows:

> At the beginning of each month the planning department gives the stores department a copy of the next month's production schedule. To meet this production schedule, the stores department lays out a schedule of incoming materials with quantities and dates. This schedule shows which orders should be expedited.
>
> Together with the exact schedule of the month's production, there is laid out a rough estimate of what the production for each of the next four months will be and also for the balance of the year. This guides the purchase planner in being strict or lenient in his enforcement of deliveries for bulk material.
>
> All of these figures are tabulated by the stores department on a "raw materials shortage table." This schedule represents material to be procured ready for manufacture during each month as specified. Materials for each month should be on hand in stores on the first of that month. This gives us time to gather material for all parts of an assembly.[1]

[1] *Management and Administration* (March, 1924), p. 316.

Relation of Material Requirements to Materials Inventory

To translate the materials requirements of the production budget into a materials budget it is necessary to take into consideration the inventory of materials at the beginning of the period and the estimated inventory at the end of the period. To illustrate: the production budget calls for the manufacture of 2,000 articles X, and it is estimated that it will take 8,000 pounds of Commodity Y to produce these. The records of the factory show that the inventory of Article Y at the beginning of the budget period is 600 pounds, and it is estimated that an inventory of 400 pounds at the end of the period will be sufficient. The estimate of materials on Commodity Y for the period will be 2,000 pounds + 400 pounds − 600 pounds = 1,800 pounds. Each commodity on the materials budget must be treated in this manner, if an accurate estimate is to be prepared.

But the problem of the purchasing department is not merely to purchase the quantity of materials that are to be used in production during the budget period. It must purchase the materials in anticipation of factory requisitions, and place them in the storeroom so that the needs of the factory may be served promptly. At the same time it must keep the inventory as small as possible so that the capital and storage costs of carrying the materials inventory will not be excessive. It is the problem of the purchasing department, therefore, to schedule deliveries of materials so that a sufficient amount of materials will be on hand at all times to meet the production needs and yet to prevent an excess of inventory with the consequent loss arising from its possession. To accomplish this it is necessary to set up a schedule for the inventory of materials to be maintained, and to set up a schedule of deliveries which will maintain the inventory schedule.

The enforcement of the inventory and purchasing schedules can in most cases be accomplished most effectively by the establishment of maximum, minimum, and quantities to order for each inventory item. These are used in the control of raw materials in a very similar manner to the way they are used in the control of finished goods. The factors to be considered in determining their amount are different in terminology but very similar in nature to those considered in determining the same quantities for finished goods. Instead of considering the production period it is necessary to consider the purchasing period or the length of time between the sending of the purchase order and the receipt of the goods. Instead of considering probable sales, it is necessary to consider the probable factory requisitions for materials. Instead of considering the economical run, it is necessary to consider the economical quantity to purchase with reference to terms, price, and deliveries.

The maximum, minimum, and quantity to order are entered on the balance-of-stores record, and when the inventory falls to the minimum, a purchase requisition is sent to the purchasing department for the quantity to order. The procedures involved from the time the requisition is received by the purchasing agent until the goods are received into stock have been explained in chapter xx.

Relation of Purchasing Policies to Materials Budget

There are many factors which may affect the purchasing policy of a firm, and some of these are opposed to the control of purchases by budget. For example, some firms think it is the function of the purchasing department to speculate on market changes and tendencies. In these firms during periods of rising prices large quantities of materials will be purchased and deliveries scheduled far in excess of production demands. It is undoubtedly true that a firm may make large savings by placing large orders while prices are increasing. It obtains materials for future use at a lower price than it could obtain them if it waited to purchase them when needed. It is also more assured of their delivery than if it waited until their purchase is indicated by the materials budget.

This policy is likely to prove a dangerous one, however, if careful control is not exercised. If the purchasing department is given the opportunity to purchase in large quantities, unrestrained by the limitations of present requirements, as shown by the materials budget, it is likely to make the most of its opportunity, and continue the policy of quantity buying as long as prices continue to rise. When the turn in prices comes, the firm is likely to find itself burdened with an inventory far beyond its needs, and with large deliveries scheduled to be made for several months, all of which has been purchased at the peak of prices. In many cases, even if the firm escapes serious financial embarrassment, it loses more on its high-priced inventories than it gained from the quantity buying during the period of rising prices.

A falling price-level has the opposite effect on the purchasing policy of many firms. The possibility of buying materials in the near future at reduced prices and the ease with which goods can be procured tend toward "hand to mouth" buying. It is very desirable to exercise caution during a period of declining prices, but the purchasing policy may be so conservative that it will result in a decided loss. Parsimonious buying may result in unbalanced inventories, which may make it impossible to give proper service to customers, with the consequent loss of trade. Small purchases may also result in higher prices and greater freight rates.

It is the author's opinion that the purchasing department is not equipped to speculate, and that it is not its function to attempt to do so, except under rare circumstances. We have not yet developed methods of forecasting with sufficient accuracy to make it possible to speculate on market trends without the incurring of great risk. As Mr. Arthur E. Swanson very well says in the November, 1921, *Administration:*

The difficulty which even very experienced and well-trained business men encounter in predicting even approximately the trend of price levels and business activity has caused many to follow a sort of straddling policy in reference to economic trends. They do not buy very far in advance when the level appears to be on a long upward swing or very close when the level appears to be on a downward swing. They are satisfied with an average buy.

Whatever may be the purchasing policy of a firm, it is the function of the materials budget to show the materials required by the production program, and to show a schedule of deliveries which will meet the needs of this program. If the management desires to disregard the purchasing program shown by the budget in order to carry into effect purchasing policies which it has adopted, that is its privilege. There is much evidence to show that it is only in exceptional cases that it is wise for it to do so.

The "Stores" Budget

The purchasing department buys not only the materials which become a part of the manufactured product but also numerous *supplies* used in carrying on the manufacturing operations. Under a well-developed system of inventory control it is customary to term as *stores* all the materials purchased for all purposes, and to place them in a storeroom from whence they are requisitioned for use. When the requisitions are issued, it is indicated whether the stores for which they call are to be charged as materials or as supplies.

Because of this method of handling materials and supplies, it is the practice of some firms to prepare a *stores* budget which takes the place of the materials budget. The *stores* budget includes the estimated purchases for both materials and supplies. It is claimed that it is easier for the purchasing agent to make a *stores* budget than it is to estimate separately the materials and supplies. It is also claimed that it is easier to compare the estimated with the actual performance if the materials and supplies are shown in one budget. This contention is based on the fact that both the materials and supplies are charged to a stores account when purchased, and are not distributed as between materials and manufacturing expense (supplies are charged to manufacturing expense when consumed) until they are requisitioned from the storeroom for use. Consequently, the stores accounts give a ready means of checking the estimate of purchases, while the materials and manufacturing expense accounts do not since purchases do not correspond with consumption during any specific period.

There is considerable merit in these contentions, and it is advisable in some cases to prepare two budgets—the first based on purchases and the second on consumption. The consumption budget is essential if standard costs are to be established for material, labor, and manufacturing expense, and it is the belief of the author that such standards are essential for effective production control.

Preparation of Materials Budget

The production department should be responsible for preparing an estimate of the materials required to produce the goods called for by the production budget. If a well-developed planning department is in operation, it will have available data from which it can prepare this estimate without difficulty. If there is not a planning department, the estimate of materials requirements should be prepared by the staff of the production manager.

The estimate of materials should be transmitted by the production manager to the purchasing department. This department should make an estimate of the purchases required to meet the estimate of materials. This procedure is not always followed. In some firms the production budget is sent to the purchasing department, and it is required to estimate both the materials required and the purchases necessary to meet these requirements. This is not a desirable procedure. The estimate of materials can best be made by the production department for it either has available the information necessary for its preparation, or it can obtain it easily. If the purchasing department collects the data necessary to make this estimate, this will usually lead to a duplication of data, the same information being collected and recorded by both the production and the purchasing departments.

In other companies the production department prepares both the estimate of materials and the estimate of purchases. This procedure is likely to lead to equally undesirable results. The purchasing department should have available for its own use the data necessary for the preparation of the estimate of purchases. If this task is undertaken by the production department, it will be required to collect duplicate data which it is not as well qualified to interpret and use as is the purchasing department. Furthermore, the purchasing department may rightly resent what it regards as an undue usurpation of its functions. One of its primary functions is to collect data and formulate a purchasing program which will meet the needs of all the departments, and result in the most profit to the company. If the production department prepares the estimate of materials purchases, it is depriving the purchasing department of its right to exercise its initiative and judgment in this matter.

It is not feasible to prescribe a form for the materials budget which will satisfy all conditions. The form shown in Chart XLIII (p. 563) is serviceable in some cases. The illustration is designed for use when the budget period is three months in length. Additional columns will be added when the budget period covers a greater length of time.

In most cases the materials budget will need to be prepared prior to the beginning of the budget period, therefore all the information shown on the budget report including the beginning inventory must be estimated. The estimated beginning inventory can be obtained from the budget report of the previous period since the ending inventory of one period will be the beginning inventory of the next period. The estimated purchases will be based on the estimate of materials submitted by the production department with such modifications as the purchasing department may think necessary. For example, the purchasing department may purchase more during the month than called for by the materials estimate, because the latter amount may not constitute an economical purchase. The estimated inventory at the end of the month is obtained by adding the estimated purchases to the beginning inventory and subtracting the estimated consumption of materials as shown by the estimate of materials submitted by the production department. If the quantity of purchases and the quantity of materials consumed are the same, the beginning and ending inventories will be the same. A comparison of the beginning and ending inventories is of significance to the budget committee since in case of an increase in inventory the purchasing department may be asked to explain the cause.

The estimated disbursements for purchases of previous months can be obtained from the unpaid invoice file. The accounts-payable section of the accounting department should supply this information. The estimated disbursement for purchases of the current month will be determined by estimating the time of delivery of the purchases and allowing for the usual discount period. The information shown in this column can be only approximately correct, but this does not destroy its usefulness since the purpose of showing the estimated disbursements on the materials budget is only to indicate in a convenient form for the use of the treasurer and the budget committee the probable financial requirements of the contemplated purchasing program. These estimates will be checked and revised, if necessary, by the executive in charge of the budgetary program and the treasurer in the preparation of the monthly estimates of cash receipts and disbursements.

The estimate of material purchases is forwarded by the purchasing department to the executive in charge of the budget

CHART XLIII

ESTIMATE OF PURCHASES

Item	Inventory Beginning of Month	Estimated Deliveries to Stock during Month	First Month				Second Month	Third Month
			Estimated Orders to Be Placed during Month	Estimated Inventory at End of Month	Estimated Cash Disbursements for Purchases Made during Previous Months	Estimated Cash Disbursements for Purchases Made during the Month	Same as First Month	Same

program, and is by him transferred to the budget committee together with the other departmental estimates. After the estimate of materials is approved by the budget committee and board of directors, it is transferred by the executive in charge of the budget procedure to the purchasing department, and constitutes its working program for the budget period, subject, however, to monthly revisions which may be made by the budget committee.

Control of Materials Budget

The materials budget should be checked up at frequent intervals so that errors in the original budget may be detected and corrections made as quickly as possible. To make this possible, it is necessary to have a monthly report showing comparisons between the estimated and the actual purchases. A report in the form of Chart XLIV will serve this purpose.

The purpose and value of the information shown in each column of this report should be evident. The executives should study this report in the light of the production for the month compared with the estimated production. They should also give consideration to the comments shown in the last column since there may be special considerations which have brought about a deviation from the materials budget. Such deviations should be made, as a general rule, only in response to executive direction or permission. This report should be submitted to the executive in charge of the budget procedure, and should be transferred by him to the budget committee with such recommendations as he may think desirable. By a study of this report the budget committee is able to make such revisions as are necessary in the materials budget for the remainder of the budget period. These revisions should be communicated to the purchasing department by the executive in charge of the budget program.

The budget committee and the treasurer will want in addition to the report shown in Chart XLIV a report showing the disburse-

CHART XLIV

MONTHLY REPORT ON MATERIAL PURCHASES

Item	Estimated Purchases	Actual Purchases	Percent of Increase or Decrease	Estimated Commitments	Actual Commitments	Percentage of Increase or Decrease	Estimated Inventory	Actual Inventory	Percent of Increase or Decrease	Comments

ments for material purchases during the month compared with the estimated disbursements for the month. The form of this report will be shown in connection with the discussion of the financial budget in chapter xlviii.

Control of Stores Issues

Effective control over the issuing of stores requires (*a*) that they be issued only on proper authority, (*b*) that they be correctly priced at the time of issue, and (*c*) that proper entries be made to show their transfer into the production process.

Stores should be issued typically only upon receipt of a written requisition issued by the planning department or the production manager. A requisition should contain the following information:

1. The symbol of the account to which the value of the material is to be charged upon issuance. This symbol shows whether the material is to be charged to a departmental expense account or to a production order.
2. The quantity of material desired.
3. The symbol and description of the material desired.
4. The department and its location or the production unit to which delivery is to be made.
5. The time when delivery is to be made.
6. The approving signature of a duly authorized party and the date of approval.

Requisitions are usually issued in triplicate. One copy is retained by the requisitioner, and two copies sent to the storesroom. The storeskeeper retains one copy for his files, and sends the other copy to the balance-of-stores section of the planning department. Sometimes the storeskeeper sends the third copy with the materials, and has it receipted by the party to whom they are delivered. It is then returned to the storeskeeper for his files.

The balance-of-stores section is usually responsible for pricing the requisitions. The information necessary for this purpose is obtained from the inventory records. If the inventory records do not show unit prices, the requisitions are sent to a cost clerk for pricing. There are four methods of pricing stores when they are issued for production purposes:

1. *Original cost.*—Under this method it is assumed that the materials issued are the materials which have been longest on hand, and the original cost of these materials is used.

2. *Average cost.*—Under this method the average cost of all materials on hand is ascertained each time materials are issued, and this cost used in pricing the materials issued.

3. *Market price.*—Under this method the market price, that is, replacement cost, at date of issue, is used for pricing purposes. This plan is rarely used except where the purchasing department is permitted to speculate on the market and it is desired to ascertain separately the results of the buying operations and the production operations.

4. *Standard or normal cost.*—Under this method a cost is established which it is thought represents the standard or normal cost of materials, and this is used as a basis for charging materials into production instead of the actual cost. It is argued that this method results in more uniform cost and gives a more reliable basis for fixing selling prices.[1]

Recording of Stores Transactions

Adequate records for stores transactions are necessary:

1. To carry out the purchasing and stores procedure. We have already seen how they are used as a basis for issuing purchasing requisitions. They are also used to keep a record of orders outstanding, and to reserve materials for specific production orders.

[1] For further discussion of this subject see 1923 *Yearbook, National Association of Cost Accountants.*

2. To secure accurate inventories at frequent intervals. It is usually too expensive to take a physical inventory as frequently as financial statements are required.

3. To secure proper cost figures. We have seen how they are used as a basis for pricing the requisitions which are used by the cost-accounting department in ascertaining material costs.

4. To secure statistical data to use as a basis for estimating material requirements and planning a purchasing program. The inventory records show the materials of each kind issued for production purposes during each period.

The inventory record for raw materials does not differ materially from the form of record used for finished goods. A useful form is shown in Chart XLV.

This form provides for a column showing the balance or quantity on hand after each withdrawal. Some accountants argue that a preferable form of record is one showing running totals instead of balances. Mr. J. P. Jordan offers this argument in favor of the latter form:

> After many tests during actual operation of Stock Records it was proved that the number of times a "Balance" was actually used in comparison to the number of times it was computed was very small.
>
> By the same series of experiments, it was found that the extra work necessary to answer questions from all sources, such as from Purchasing Production, Sales, and other departments, as to the quantities used in given times was enormous.
>
> The reason for this was that by the "Balance" method, it was necessary each time to add the entries for the period desired in full detail. By the "Running Total" method, this or any figure is available by simply subtracting any two figures.
>
> Furthermore, as to accuracy—addition is easy; it is therefore far more accurate than subtraction. By the "Running Total" method, the clerical work is all addition except for the comparatively few times an actual balance is required, and almost always only a glance is required to add a new item to the running total and to calculate the balance on hand.[1]

[1] *Service Bulletin* of C. E. Knoeppel & Co.

CHART XLV[1]

MODERN STORES RECORD CARRYING BALANCES. (SIZE 14 X 11.)

STORES RECORD FOR	ORDERING QUANTITY	STORES SYMBOL	
NOTES – SPECIFICATIONS, DESCRIPTION, ETC.	ORDERING POINT "AVAILABLE"	UNIT	SHEET NO.
	DANGER POINT "ON HAND"	LOCATION IN STORES	

ORDERS						ON HAND						RESERVED				AVAILABLE	
DATE, KIND & NO. OF ORDER REQ.	ORDER NO. AND KIND	DELIVERY WANTED	QUANTITY ORDERED	TOTAL QUANTITY ON ORDER	DATE REC'D IN STORES	DATE REC'D IN STORES	QUANTITY	DATE ISSUED	ISSUED FOR CHARGE SYMBOL	TOTAL COST	AVG. UNIT COST	DATE RESERVED	QUANTITY	CHARGE SYMBOL	DATE ISSUED	DATE AVAILABLE	QUANTITY

[1]Taken from *Cartwell Stores & Materials Control*, Ronald Press Company, 1923.

A form designed to show running totals is illustrated by Chart XLVI.

The inventory records should be kept independently of the stores department, for one of their important uses is to serve as a check on the storeskeeper and his assistants. This check may be exercised in several ways. The three methods most frequently used are the following:

1. A physical inventory is taken periodically (usually semi-annually or annually), and this is checked against the stores records.

2. An "inventory crew" is engaged regularly in comparing the inventory records with the quantities on hand.

3. Bin tags are kept by the stores department showing the quantity on hand, and these are forwarded to the balance-of-stores section from time to time for comparison with the inventory records.

The materials received are entered on the stores records from either the invoice or the report on material received. If the latter shows unit costs, it can be sent to the balance-of-stores section after it has been checked against the invoice by the accounts-payable section of the accounting department. The report on materials received will usually not contain unit prices unless it consists of a copy of the purchase order which the purchasing department sends to the receiving department for its use. Even though this method is followed, the purchasing department frequently leaves the price off of the copy of the purchasing order sent to the receiving department. It is usually necessary, therefore, for the balance-of-stores section to rely on the invoice for its information on unit costs.

Entry for the materials issued is made from the stores requisitions. After the requisitions are entered on the inventory records they are forwarded to the cost accounting section of the accounting department where they are used as a basis for entries in the cost records, in the manner explained in chapter xxix.

CHART XLVI[1]

Modern Stores Record with "Appropriated" and without Balance Columns. (Size 17 x 11.)

	NAME OF ITEM		SYMBOL	SIZE
YEAR / QUANTITY	DESCRIPTION AND KIND	UNIT / UNIT WEIGHT	CUBIC SPACE	TYPE
ACCOUNT NO. / WHERE STORED	SECTION / SHELF / BIN	MADE FROM	DATE	
TIME REQUIRED TO GET / PRINCIPAL SOURCE OF SUPPLY		USED FOR	MAX / MIN.	

REQUIREMENTS			APPROPRIATED				ORDERED				RECEIVED						ISSUED					
FOR	ITEM	TOTAL	FOR	ITEM TOTAL	ITEM QUANT	TOTAL	DATE	ORDER NO	ITEM	TOTAL	DATE	ORDER NO	ITEM	TOTAL	PRICE	AMOUNT	DATE	ORDER NO	ITEM	TOTAL	PRICE	AMOUNT

[1] Taken from *Cartwell Stores & Materials Control*, Ronald Press Company, 1923.

QUESTIONS FOR CLASS DISCUSSIONS

1. The X Company produces 3 different articles, and uses 4 different materials in producing each. The Y Company produces 10,000 different articles, and uses 2,000 different raw materials in producing these. Explain any differences which you think may exist in their method of determining their material requirements.
2. "In some cases it is expedient to obtain the ratio between the production volume for several periods and the volume of materials of each kind required for this production and apply these ratios to the production budget of the current period to obtain the probable material requirements for the period." To what difficulties may this method give rise?
3. In what way is the establishment and enforcement of *minimum* and *quantity* to *order* different in connection with raw materials than in connection with finished goods?
4. What factors should be considered in determining the quantity which constitutes an economical purchase?
5. "There are many factors which may affect the purchasing policy of a firm." Name as many of these as possible.
6. The purchasing agent of the M Company contends that the materials budget takes from him his initiative and judgment, and reduces his position to that of a mere routine clerk. What about it?
7. Give the advantages and disadvantages of the *stores* budget.
8. Explain the possible procedures which may be followed in the preparation of the materials budget. Explain your opinion of each.
9. "In most cases the materials budget will need to be prepared prior to the beginning of the budget period, therefore all the information shown on the budget report including the beginning inventory must be estimated." Why is this true?
10. "Stores should be issued typically only upon receipt of a written requisition issued by the planning department or the production manager." Give illustrations of when they might be issued on other authority.
11. Give arguments for the use of each of the following methods of pricing stores issues: (*a*) original cost, (*b*) average cost, (*c*) market price, (*d*) standard or normal cost. Can you suggest any other method?
12. What are the relative merits of balance-of-stores records showing "balances" and those showing "running totals"?
13. The King Manufacturing Company produces 25 per cent of its total product on special order. The raw materials used on these special orders vary widely in nature, and frequently it has to purchase materials for these orders which are not regularly carried in stock. Outline a procedure for controlling these materials.

14. "There are some lines of business in which materials cannot be controlled by the use of maximum, minimum, and quantities to order." Do you think this is correct? If so, give illustrations and explain how inventory would be controlled in these cases.

LABORATORY EXERCISE NO. 41

The Brown Manufacturing Company produces 20 different commodities and there are several patterns of each commodity, so that 250 separate articles are manufactured. There are 25 different basic materials used in the products manufactured, and in addition approximately 50 different kinds of supplies are used.

The materials storeskeeper makes a report to the purchasing agent each week which shows the following: *a*) The approximate inventory of each article of materials and supplies. Perpetual inventory records are not used; *b*) The estimated number of weeks which the inventory will supply the production requirements. This estimate is made by the storeskeeper on the basis of the requisitions received from the factory during past periods for each item of materials and supplies.

The purchasing agent uses this report as a basis for placing orders for additional materials and supplies. Each of the departments, except the manufacturing department, purchases its supplies, stores these, and uses them as it sees fit.

In the manufacturing department the foreman of each department draws materials and supplies from the storeroom whenever he desires to use them. No record is kept of the amount withdrawn by different foremen.

Required

You have been employed by the president of the company to make an investigation of its methods of handling materials and supplies. Write a report to the president covering the following:

1. Your criticisms of the present method of handling materials and supplies
2. The method which you think should be followed giving a complete procedure for
    a) Determining the amount to be purchased
    b) Initiating the purchasing process
    c) Safeguarding the use of materials and supplies

REFERENCES FOR FURTHER STUDY

1. Gordon, *Industrial Management*, May, 1923.
2. Coates, "Budget System Used to Determine Material Stocks Needed," *Electrical World*, August, 1921.
3. Cartmell, *Stores and Materials Control*, chaps. iii to viii.

CHAPTER XXVII

LABOR CONTROL

Requisites for Labor Control

The effective control of the labor used in production requires the following:

1. Determination of the probable labor requirements and the preparation of a labor program.

2. Establishment of a proper procedure for the procurement and maintenance of an efficient working force of sufficient size to meet the requirements of the labor program. This subject is discussed in some detail in chapters xxxi to xxxiii inclusive, so it will not be considered here.

3. Classification and recording of information concerning labor operations which is needed for statistical and accounting purposes.

Determination of Labor Requirements

It is especially important that those who are responsible for the procurement of laborers should have information concerning labor requirements a considerable time in advance of when these requirements are to be met. To obtain an efficient working force is not an easy task, and capable workmen cannot be secured like materials by issuing a purchase order. If skilled laborers are required, the task of supplying them is usually not an easy one. In many cases they must be trained before their services can be used effectively. The labor budget gives the personnel department an approved program on which to work.

The planning department should maintain an analysis of each product manufactured which will show the detailed operations required in its production. The planning department needs this information in preparing time tickets for distribution to the manufacturing departments when production orders are being scheduled. A similar analysis may be available in the estimating department, the pay-roll department, or the personnel department. If for any reason none of these departments have such records, they should be prepared by the staff of the production manager.

By the use of this analysis it is possible to estimate the labor required to produce the goods called for by the production program. The preferable way of making this estimate is to take each item on the finished goods or production budget and determine the amount of labor of each kind required to produce it. To illustrate, the production budget calls for the manufacture of 1,000 articles X of Y size. The product analysis shows that article X passes through four processes. Process A requires four hours of labor, process B two hours, process C three hours, and process D five hours. It takes therefore a total of fourteen hours to produce one unit of article X. If 1,000 articles are to be produced, it will take a total of 14,000 hours. It is of course probable that the labor used in the different processes is not of the same grade, in which case the total labor required for each process must be estimated separately. If each item on the production budget is considered in this manner it is possible to determine the total labor requirements of the production program.

In some cases the budget of machine capacity (see pp. 511f.) is used as a basis for estimating labor requirements. The number of "machine hours" required by the production budget having been obtained, an estimate is then made of the workmen required to operate these machines. In other cases it has been found expedient to obtain the ratio between the production volume for several periods and the volume of labor of each kind required for this production, and apply these ratios to the production budget of the current period to obtain the probable labor requirements for the period. These estimates will be more accurate if separate ratios are determined for the different classes of product manufactured, for different quantities of labor will be required for different classes of finished product, and the ratio between the volume produced of the different classes is likely to vary from period to period.

In some cases the estimate of labor requirements is made by determining the labor cost per unit of production for several periods, and then applying this unit cost to the estimate of production for the current period. For example, it may be ascertained that the average labor cost as shown by the records for several periods is $20 a ton. The estimate of production calls for the manufacture of 1,000 tons, therefore the estimate of labor is $20,000. If the unit cost is determined carefully, and is calculated separately on each product, an estimate made in this manner may serve satisfactorily for purposes of financial control, but in most cases it does not provide satisfactory information for the use of the personnel department.

During recent years considerable attention has been given to the development of standard costs. The first work in this field was confined to the establishment of standard rates for manufacturing expenses. Some firms, however, have established standard material and labor costs. When such costs are available they are useful in estimating labor requirements. The standard labor cost during any period, however, may vary to a considerable extent from the actual costs, and it is the latter which are needed for purposes of the labor budget.

Industrial engineers have performed valuable work in the establishment of standards for judging labor. The first work performed by the exponents of "scientific management" was the establishment of standard time limits for the performance of tasks. Where such data are available they are very useful in estimating labor requirements. Even where the firm for which a budget is being prepared has not such information, it may be possible to obtain it from firms in the same or similar lines of business.

Relation of Labor Requirements to Production and Labor Policies

If the sales, production, and labor budgets could be made to fluctuate in exact harmony with one another, the calculation of labor requirements would be simply a mathematical process after the sales requirements were obtained. But the preparation of a labor program is not so simple as this. It is necessary to consider not only the immediate but also the long-time labor requirements of a firm. This leads to a consideration of its production and labor policies.

If it is the policy of a firm to stabilize its production as much as possible, and to eliminate as much as possible the fluctuations which would follow by making the production volume fluctuate in harmony with sales fluctuations, this will have an important influence on the labor program. Even though the production program does fluctuate it may not be wise to make the labor supply fluctuate to as great an extent. If skilled employees are discharged when the production volume temporarily drops, it may be difficult to replace them when the production volume increases. The cost incurred in securing and training new employees may be far greater than the expense of carrying some employees through the slack period. Another important factor to consider is the importance of prompt and efficient service to customers. If the labor force is unwisely cut down during the slack period, delay in meeting customers' orders may result when the increased sales volume comes. The labor program should be based on a "long look ahead" rather than a "flashlight glimpse" of the present condition.

In addition, each firm must consider its relations to labor unions, the state labor laws, and similar agencies in formulating its labor program. More than all, it must consider its attitude toward its workmen, its welfare program, and the long-run policy it desires to maintain in handling its labor force. A budget, like any other administrative device, should not restrain management from exercising its legitimate functions. It should aid management by providing information to serve as the basis for judgments. This is especially true of the labor budget.

The Pay-Roll Budget

The preceding discussion has assumed that the labor budget should make provision only for the direct labor used in the manufacturing operations. It is assumed that the cost of administrative and clerical employees will either be included in a salary budget (discussed in chap. xxxii) or included in the departmental expense budgets (discussed in chap. xlv) and that the cost of indirect labor will be included in the manufacturing expense budget (see chapter xxviii). It is the practice of some firms, however, to prepare a *pay-roll* budget which takes the place of the labor budget. The pay-roll budget includes an estimate of the entire pay-roll of the company. This budget probably arose from the practice of having the labor budget prepared by the pay-roll department. This department found it easier to make an estimate of its total pay-roll than to analyze it and present separate estimates.

Although the pay-roll budget has some advantages, it is usually not desirable for the following reasons:

a) It is likely to lead to the making of inaccurate estimates. It is so very easy to add or subtract a certain amount from the total, and report the result as an estimate. If this method is used it usually results in the employment of ratios between pay-roll and volume of business, and the pay-roll does not fluctuate in proportion to volume of business.

b) It is likely to make difficult an accurate check on the estimates. If a pay-roll budget is prepared containing the cost of the entire pay-roll of the company, it is difficult to determine the cause of the variations between the actual and estimated, and such variations are bound to occur. The amounts shown on the budget will not correspond with the amounts shown in the records since the pay-roll is there classified by departments, and in the production department the *direct* labor is recorded under labor while *indirect* labor is recorded as manufacturing expense.

c) It is desirable to have each functional department prepare an estimate of its total expense including its pay-roll. This procedure requires the head of each department to consider what his costs have been and what he plans that they will be in the future. This is one of the important purposes of the budgetary program, and the budgetary procedure should be designed so as to obtain this result.

Preparation of Labor Budget

The estimate of labor requirements may be prepared by the planning department, the staff of the production manager, the pay-roll department, the personnel department, or the cost-accounting section of the accounting department. The planning department is usually best qualified to make the preliminary estimate. In any case, the estimate must be approved by the production manager.

The production manager should transmit the estimate of labor requirements to the personnel department, and this department should make an estimate of the cost of the labor required. In some cases the personnel department makes an estimate of the personnel required to meet the requirements of the labor estimate, and then transmits this estimate to the pay-roll department where the estimated cost is entered. It is then returned to the personnel and production departments for review, after which it is sent to the budget committee.

In some firms the production budget is sent to the personnel department, and it is required to estimate both the labor required and the cost of securing it. This is usually not a desirable practice for the production department should be best qualified to estimate the labor requirements in terms of labor units. It is the function of the personnel department to be in touch with market conditions and know the cost of this labor.

In other firms the production department prepares both the estimate of labor requirements and the estimate of labor costs. This procedure usually leads to equally undesirable results. The personnel department must have available for its own use the data necessary for the preparation of the estimate of labor costs, and if this task is undertaken by the production department, it will be necessary for it to collect duplicate data which it is not as well qualified to interpret and use as is the personnel department. Furthermore, the personnel department may rightly resent what it regards as an undue usurpation of its functions. One of its primary functions is to collect data and formulate a labor program which will meet the needs of all the departments and result in the most profit to the company. "Labor program" is here used in a broad sense, and does not refer to estimating labor costs only. If the production department prepares the estimate of labor cost, it may be such as to conflict with the general program of the personnel department.

Form of Labor Budget

The form shown in Chart XLVII (p. 582) may be used in the presentation of the labor budget. It can be modified to suit the needs of each particular case. This form is intended for use in presenting the labor budget to the budget committee. The production department will need more detail reports in preparing the estimate. The illustration is designed for use when the budget period is three months in length. If the period is for a longer period of time, additional columns can be added.

If the estimate is prepared in this form, it will be possible for the budget committee to determine whether the current estimates are in excess of past expenditures, and, if so, to determine the cause of the increase. If this increase is deemed unjustifiable, the estimate can be revised accordingly. The value of the monthly distribution to the treasurer in the preparation of his cash budget should be evident.

It may be desirable to show an analysis of the labor costs of each department. At least the production and personnel departments will employ such an analysis in making the estimate.

After the estimate of labor is approved by both the production and personnel departments it should be forwarded to the executive in charge of the budget procedure. He will transmit it, with such recommendations as he may think necessary, to the budget committee. The latter will consider it in connection with the other budgets submitted to it, and will make revisions if it thinks they are necessary. It will return the budget as approved to the executive in charge of the budget procedure, who will transmit a copy of it to the production and personnel departments.

Control of Labor Budget

The labor budget, like all other budgets, must be kept under effective control, and this involves the preparation at frequent intervals of reports providing a comparison between the actual and estimated performance. It is usually desirable to have a monthly report showing these comparisons. A report in the form of Chart XLVIII is useful for this purpose.

The purpose and value of the information shown in each column of this report should be evident. The executives should study this report, giving particular attention to the effect of any variations in the program on the labor cost.

This report should be submitted to the executive in charge of the budget procedure, and should be transferred by him to the budget committee with such recommendations as he may think desirable. By a study of this report the budget committee can make such revisions as are necessary in the labor budget for the remainder of the period. These revisions will be communicated to the personnel and production departments by the executive in charge of budget procedure.

CHART XLVII

THE LABOR BUDGET

ITEM	AMOUNT LAST PERIOD	AVERAGE AMOUNT LAST FOUR PERIODS	ESTIMATED AMOUNT FOR CURRENT PERIOD	ESTIMATED PRODUCTION FOR PERIOD	AVERAGE PRODUCTION FOR LAST FOUR PERIODS	DISTRIBUTION		
						First Month	Second Month	Third Month

CHART XLVIII

MONTHLY REPORT ON LABOR BUDGET

Item	Estimated Production	Actual Production	Percentage of Increase or Decrease	Estimated Cost of Labor	Actual Cost of Labor	Percentage of Increase or Decrease	Ratio of Estimated Cost of Labor to Estimated Production	Ratio of Actual Cost of Labor to Actual Production	Ratio of Cost of Labor to Production during Last Four Periods

Classifying and Recording Labor Costs

The personnel department is responsible for procuring the laborers called for by the labor program. The control of the production department over the laborers does not commence until they are turned over to the operating man ready to commence work. It is at this point that "labor costs," in the sense in which we are using this term, commences.

Labor costs must be classified and recorded so it will be possible to ascertain the following:

1. The wages of each workman.

2. The labor costs chargeable to each production order, process, or operation.

3. The charges to the ledger accounts which show the results of the factory operations.

The original record of labor costs is usually made by means of time tickets. Usually a separate ticket is prepared for each workman and for each job or operation. Under centralized plan of production control these tickets are prepared by the planning department, and distributed to the "workmen's racks" at the time the production order is issued to the factory. When a workman is ready to commence operations on a new job he receives from the rack a time ticket for this job. The time when he commences work on the job is recorded on the ticket either by the workmen or by a clerk representing the timekeeping department. If there is an intermission in the work of the laborer before he has completed the task called for by the time ticket, the time when the work ceased and the time when it commenced again should be entered on the ticket. For example, the time when the workman ceases work in the afternoon and resumes work in the morning should be shown on his time ticket if he has an uncompleted task at the end of the day.

In some firms the workmen are responsible for making the necessary entries on the time ticket. In others, clerical employees are used for this purpose. If the workmen are of an intelligent type, they may make these entries satisfactorily, especially if mechanical equipment is provided, and all they have to do is to insert the card in the machine and operate the machine. In general, however, it is desirable for the workers to be called upon for as little clerical work as possible. It interrupts them in performing their major tasks, and is likely to lead to inaccuracies due to their carelessness and lack of training.

The time tickets are forwarded from the operating departments to the pay-roll section of the accounting department where the wage-rates are entered and the proper extensions made. It is then necessary to assemble the tickets.

a) By workmen so that the total due each workman can be ascertained. This amount is entered on the pay-roll opposite the name of the laborer. After the pay-roll is complete, it is sent to the cashier for payment.

b) By production orders, processes, or operations so that the labor cost for each order process or operation can be ascertained. Sometimes this classification is made by the pay-roll section and sometimes it is made by the cost-accounting section after the tickets are sent to it by the pay-roll section. Some firms have time tickets prepared in the form of a tabulating card, and use tabulating machines to assemble labor costs.

A copy of the pay-roll as prepared by the pay-roll section is sent to the accounts-payable section, where it is vouchered and proper entry made in the voucher record. From this record postings are made at the end of the period to the ledger accounts with Work in Process and Accounts Payable. The accounts-payable section prepares a check for the amount of the pay-roll, and this is signed by the treasurer and forwarded to the cashier to cover the pay-roll. The recording of labor costs in the accounting records is further discussed and illustrated in chapter xxix.

The preceding discussion is confined to the method of classifying and recording labor costs in a typical manufacturing firm.

No attempt is made to consider the problems arising in different types of manufacturing industries or the problems arising from different types of wage payment. For a discussion of these topics the student is referred to the current literature of cost accounting.

QUESTIONS FOR CLASS DISCUSSION

1. "The planning department, the personnel department, the pay-roll department, the estimating department, or the accounting department may have an analysis of products showing the detailed operations required in the production of each product." Give the use which each of these departments may make of such information.
2. The A Company pays its laborers on a *per diem* basis, the B Company pays its laborers on a piece basis, and the C Company pays its laborers on a piece-and-bonus basis. Explain the method of estimating the labor cost in each case.
3. The Reliable Manufacturing Company does not have a personnel department, and it does not prepare a labor budget. The foremen of the various departments employ and discharge the laborers under their jurisdiction, and no limitations are placed on their authority. The production manager defends this method. He says the company has always had a staff of well -trained workmen, and that it has made money. He sees no reason for incurring the expense of a personnel department or for the preparation of a labor budget. Do you agree?
4. Give the advantages and disadvantages of the different methods of preparing the labor budget which are discussed in this chapter.
5. What are the principal factors a firm should consider in the preparation of a labor budget, and what is the significance of each?
6. Explain and illustrate the advantages and disadvantages of the "payroll" budget.
7. In the M Company the labor budget is prepared by the cost-accounting department. It obtains the ratio of labor to volume of production during past periods, and applies this to the estimate of production for the current period to obtain the estimate of labor cost. Do you think this is a desirable plan?
8. The X Manufacturing Company does not have a personnel department neither does it have a production manager. The foremen of the departments employ the laborers they require, and discharge them when they think desirable. The foremen report directly to the general manager

of the company. Suggest the procedure to be followed in preparing a labor budget in this company.

9. Under what conditions should the budget committee make revisions in the labor budget?
10. Draft forms which might be used as substitutes for Charts XLVII and XLVIII.
11. Give conditions under which the procedure for classifying and recording labor costs given in this chapter would not be applicable.
12. Explain how the methods of classifying and recording the labor costs of the three companies discussed in question 2 would differ.
13. Assume an organization for a medium-size foundry manufacturing entirely on special order, and outline a procedure for recording its labor costs.
14. What changes would need to be made in this procedure to adapt it to a company manufacturing ink, glue, or soap?
15. What is the distinction between direct and indirect, productive and non-productive labor? Of what significance is this distinction to us in our present study?

EXERCISE NO. 42

The Kingman Manufacturing Company produces to order loading and conveying equipment. Prospective customers usually submit designs and request a quotation. These requests are turned over to the estimating department where an estimate of the cost of producing the article is prepared. The head of the estimating department and his assistants were formerly factory employees, and they can estimate quite accurately the quantity of material and labor required to produce the products desired. This department is kept informed of the current prices of material and labor and uses this information as a basis for estimating the material and labor costs. A standard rate is added to the labor cost for the cost of manufacturing expense.

The laborers are paid a *per diem* wage. Each laborer is "checked in" to the factory in the morning and "checked out" at night by clerks placed at the entrance. No attempt is made to charge the workmen's time to the individual production orders. The total paid to workmen is charged to the pay-roll account at the time the pay-roll is paid. The estimated labor cost, as established by the estimating department, is charged to the individual orders, and when these orders are entered in the ledger accounts, goods in process account is debited and the pay-roll account is credited for the amount of the estimated labor cost. The balance of the pay-roll account shows the difference between the actual labor cost and the estimated labor costs of all orders for the period. This balance is transferred to profit and loss.

During recent months the pay-roll account has shown a rapidly increasing debit balance. The general manager has asked for an explanation of the situation, and the executives concerned give different answers. None of them, however, offers any constructive suggestions for its remedy.

Required

Write a report to the president giving (1) probable reasons for the present situation, and (2) the procedure for controlling their labor costs which you think is desirable.

You should take into consideration the following information as supplementary to that given above.

1. The company has sales of $10,000,000 a year.
2. It has an average working force of 4,000.
3. Its sales fluctuate to a considerable degree during the year, being heaviest during the late summer and autumn months.
4. Its laborers are strongly unionized.
5. It has strong competition in the sales field.
6. It is an old company, and most of its employers have been with it for a great many years.
7. It does not have a personnel manager and the foremen are given large authority in employing and discharging workmen.

REFERENCES FOR FURTHER STUDY

1. Jordan and Harris, *Cost Accounting*, chaps. xv and xvi.
2. Sanders, *Problems in Industrial Accounting*, chap. v.

CHAPTER XXVIII

MANUFACTURING EXPENSE CONTROL

Definition of Manufacturing Expense

The costs incurred in the production of the finished product are divided into two broad classes, *direct* costs and *indirect* costs.

Direct costs are payments or charges for labor and material expended upon a definitely determined unit of product. Small costs, however, are not charged directly to the product, even when the latter can be determined, unless the increased accuracy of the records justifies the clerical work entailed. It follows, therefore, that indirect costs are those which cannot be charged economically or directly to the product. An example of a direct cost is the cost of the raw material in a chair. Indirect costs arise from the following sources:

1. Indirect material—rags used to wipe off chairs and tools; or new tools used to replace those discarded, are good examples.

2. Indirect labor—for instance, wages of foremen who supervise the employees in several departments where chairs are made.

3. Fixed charges—depreciation, taxes, insurance, etc.

Adherence to the above cost classification adds to the accuracy of the records for this reason: By charging items directly to the cost units (when economical), the remaining costs (indirect costs) are less than if certain items legitimately "direct" were treated as indirect costs. Indirect costs are distributed over the product in as accurate a manner as possible, but such charging is less accurate than direct charging. For instance, raw material can be accurately measured and charged directly against the chair. The depreciation of the equipment used in manufacturing the chair cannot be determined with any measuring device. It must be estimated. Consequently the total depreciation of the equipment is distributed over all units of product (chairs) made. Any charging, therefore, which reduces the distributable costs thereby increases automatically the accuracy of the cost records. The growing observance of the principle of direct—that is to say, correct—charging has done much to improve the exactness of cost accounting.[1]

[1] Jordan and Harris, *Cost Accounting*.

It is the purpose of the present chapter to treat under the heading of "manufacturing expenses" the items termed "indirect costs" in the foregoing quotation. "Indirect expenses," "burden," and "overhead" are other terms by which these expenses are known.

Requisites for Manufacturing Expense Control

The effective control of manufacturing expense requires the following:

1. Determination of the amount of manufacturing expense necessary to carry out the production program.
2. Classification of expense for purposes of administrative control.
3. Allocation of expense for purposes of cost finding.
4. Recording of expense to show the effect of the classification and allocation made in (2) and (3).

Determination of Manufacturing Expense Requirements

The estimate of manufacturing expense should be based on the estimate of goods to be produced. It is more difficult to correlate manufacturing expenses and production than it is to correlate production with materials and labor:

1. The various items making up manufacturing expenses are secured from various sources and their procurement is not centralized under one individual as is the procurement of materials and labor. For example, the indirect material is obtained by the purchasing agent, the indirect labor by the personnel or employment department, the taxes are paid by the treasurer, and the repairs made by the maintenance department. This lack of centralized responsibility makes it difficult to fix the duty for the preparation of the manufacturing expense budget on those who are responsible for the expenditures resulting in the procurement of the "services" of which it is composed.

2. The manufacturing expenses do not vary as a rule in proportion to variations in the volume of production. Usually manufacturing expenses do not increase as rapidly as the volume of production during periods of increasing production, and correspondingly they do not decrease as rapidly in periods of decreasing volume of production. This is due to the fact that there are "fixed" charges included in the manufacturing expenses which are affected little or at all by the volume of production. For example, taxes and insurance on machinery will be the same whether machines are run at full or half capacity. There are other charges such as depreciation and supervision which will be affected by the volume of production but not in proportion. It is impossible, therefore, to estimate the amount of the manufacturing expense by using the ratio of manufacturing expense to production volume during past periods. Such an estimate would be of value only when the volume of production remained stationary from period to period.

The records of the cost accounting department show what the manufacturing expenses have been during past periods. This information is the starting-point in preparing the estimate for future periods. The expenses of past periods should first be analyzed and classified as "fixed" and "variable." This classification must be used with judgment, for there are few if any expenses, which are literally "fixed." The most that can be said is that they are fixed within certain limits. After this classification is made it is not difficult to estimate the amount of the fixed expenses, but the estimate of variable expenses will usually require considerable study and care. Each item of this expense should be taken separately and the effect of the production volume on its amount carefully considered. If proper statistical data are compiled it is soon possible to judge quite accurately the effect of changes in production volume on the amount of the manufacturing expenses.

The "Miscellaneous" Expense Budget

In the discussion of the materials budget it has been explained that some businesses prepare a "stores" budget which includes both *direct* and *indirect* material and in the discussion of the labor budget it has been explained that sometimes a "pay-roll" budget is prepared which includes both *direct* and *indirect* labor. When this procedure is followed, two of the large items of manufacturing expense are eliminated from the manufacturing expense budget. In this case there may be prepared a "miscellaneous" expense budget which will include all the expenses other than indirect labor and indirect material.

It is easier to prepare the miscellaneous expense budget and to have the indirect materials and labor included in the stores and pay-roll budget respectively. But it is doubtful if this method gives as effective control of manufacturing expenses. It is desirable that all manufacturing expense be shown as a total and that standards be set up by which to judge their amount. It is of course possible to set up these standards independently of the budgets, but it is much more effective if they are correlated so each will check the other. It is emphasized throughout this book that the budgets should be prepared in terms of "units of responsibility." The production department is responsible for all the manufacturing expense and it is better that its total amount be shown in one budget—the manufacturing expense budget.

Preparation of Manufacturing Expense Budget

It tends to simplicity to have the estimate of manufacturing expense prepared by the cost-accounting department. The chief objection to this procedure is that this department is likely to place too much emphasis on the statistics of past performance and too little emphasis on the contemplated performance. One method of correcting this difficulty is to have the cost department classify its estimate so as to show the expenses to be incurred by each unit or department and then have each unit or department approve that part of the estimate for which it is responsible. For example, the purchasing department may approve the estimate on indirect materials, the personnel department the estimate on indirect labor, and the treasurer the estimate on taxes and insurance.

It is possible to have each separate unit or department make an estimate of that part of the manufacturing expense for which it is responsible and then have these combined to make up the complete estimate. The separate estimates may be checked against the accounting records to test their accuracy. This method requires very careful planning and supervision to get each department to prepare its estimate properly and to schedule the estimates so they will flow into the central authority at the proper time. It has the advantage of placing the responsibility for the preparation of the estimates on those who are responsible for their performance. In all cases the production manager and his staff should study the estimate carefully to see if it is in harmony with the production policies they have agreed upon.

The executive in charge of budgetary procedure transmits the estimate of manufacturing expense to the budget committee where it is considered in connection with all the other departmental budgets. After the budgets have been approved by the budget committee and the board of directors the executive in charge of the budgetary procedure transmits the estimate of manufacturing expense to the cost-accounting department and the operating departments concerned.

The estimate of manufacturing expense can be prepared in any form which best serves the needs of each particular situation. A possible form suitable for a medium-sized organization is shown in Chart XLIX (p. 594). This form serves for purposes of production control, but is not satisfactory for financial control since it shows the consumption of services and not the disbursements for services.

Control of Manufacturing Expense Budget

The cost accounting department prepares monthly reports showing a comparison between the actual and estimated manufacturing expense. This report may be in the form shown in Chart L. The columnar headings on this report are self-explanatory.

This report is submitted to the executive in charge of the budget procedure and transferred by him to the budget committee. The committee studies this report in connection with the other monthly reports and makes any revisions in the manufacturing expense budget which it thinks the reports indicate as necessary. Any changes which it makes are transmitted to the departments concerned by the executive in charge of the budgetary procedure.

In addition to the general report on the budget as a whole there should be prepared a separate report for each department in the factory showing a comparison between the actual and standard performance. In case the general report shows a wide variation between the actual and the estimated expenditures, these detailed reports provide information which the executive in charge of the budget procedure can use in explaining these variations to the budget committee.

Classification of Manufacturing Expense

Administrative control is exercised by placing definite responsibility on units of organization for the performance of operations. In a factory, the unit of organization is the department. Manufacturing expenses should be classified therefore by departments so responsibility can be fixed on the foremen for undesirable results and credit given to them for desirable results. In many cases, however, it is necessary to have an analysis of the expenses of a department so the cause for changes can be ascertained.

CHART XLIX

The Manufacturing Expense Budget

Item	Amount Last Period	Average Amount Last Four Periods	Estimated Amount for Current Period	Estimated Production for Period	Average Production for Last Four Periods	Distribution		
						First Month	Second Month	Third Month

CHART L

Monthly Report on Manufacturing Expense Budget

Item	Estimated Production	Actual Production	Percentage of Increase or Decrease	Estimated Cost of Manu-facturing Expense	Actual Cost of Manu-facturing Expense	Percentage of Increase or Decrease	Ratio of Estimated Cost of Manu-facturing Expense to Estimated Production	Ratio of Actual Cost of Manu-facturing Expense to Actual Production	Ratio of Cost of Manu-facturing Expense to Production during Last Four Periods

This makes necessary the maintenance of subclassifications of expenses within each department. The departmental classification makes possible the fixing of responsibility, and the classification within the department makes possible the meeting of the responsibility. It also affords a basis for judging the success with which the responsibility is met.

To illustrate concretely, the X Manufacturing Company has four departments and manufactures one commodity. In 1922 the unit cost of the commodity is $12.00 while in 1923 it is $15.00. In attempting to find the cause of the increase the first analysis will be to ascertain how much of the total cost is material cost, how much labor cost, and how much is manufacturing expense. This analysis shows that the manufacturing expense per unit was $3.00 in 1922 and $4.00 in 1923. An analysis of the cost of manufacturing expense by departments for the two years shows the following:

Year	Department A	Department B	Department C	Department D
1922......	80	90	60	70
1923......	120	95	65	120

This analysis shows that the principal increases in manufacturing expenses are in Departments A and D. The responsibility for the increase is fixed on specific departments, but it is now necessary to determine whether the increase is due to inefficiency of the departmental heads or to causes over which they had no control. To ascertain this, it is necessary to examine the analysis provided by the departmental accounts.

This examination shows that in Departments A and D a large amount of miscellaneous supplies and indirect labor is necessary. Owing to the increase in the price of supplies and labor during the year, 1923, the manufacturing expense of these departments has been increased. If it is shown that approximately the same *quantity* of supplies and labor are used as previously but its price has greatly increased, the departmental foreman cannot be held responsible. If, on the other hand, it is found that the increase in manufacturing expense in these departments is due to the use of an increased *quantity* of supplies and labor, per unit of product, then there is circumstantial evidence of inefficiency on the part of the departmental foreman, and he should be required to show cause for the condition. This simple illustration serves to show the necessity for a detailed analysis of the expenses of each major group, if responsibility is to be fixed and variations explained.

Accounts should be set up in the accounting records to reflect the departmental classification of manufacturing expenses. When expenses are incurred they should be charged directly to the department they benefit whenever this is possible. For example, indirect material and labor should be charged to the departments where they are consumed, and repairs should be charged to the department where the equipment on which they are made is located. This plan should be followed for both the manufacturing and service departments. For example all the direct expenses incurred in operating the power plant, the shipping-room, and the engineering department should be charged to these units of the organization. The head of each of the units of the manufacturing organization can then be held responsible for the expenses of his unit.

Allocation of Expenses

There are some expenses, however, which cannot be charged directly to any department at the time of their incurrence. Rent, taxes, insurance, light, and telephone are good illustrations of these. When these expenses are incurred they are charged to a controlling account and are then distributed to the various departments on some equitable basis. For example, rent may be allocated on the basis of floor space, taxes, and insurance on the value of the equipment used in the department, light on the number of lamps used, and telephone costs on the basis of the telephone extensions used in each department. By this means all expenses incurred in operating the factory are finally charged to some department of the factory. But some of the departments do not perform operations on the product. They merely provide service to the manufacturing or operating departments. It is necessary to include the costs of the service departments in the costs of the product and this is usually done by first allocating the costs of these departments to the manufacturing departments so that the expense accounts of the manufacturing departments will contain the total expenses to be charged to the product. As the product passes through the departments the expenses shown in the departmental expense accounts are charged to it in accordance with the method of expense distribution employed.

Allocation of Manufacturing Expense to Product

Accountants and industrial engineers have given much thought to the problem of allocating manufacturing expenses to the product manufactured. Many methods of apportionment have been developed. It is impossible in this discussion to explain all these methods. Consequently it is necessary to select for treatment those which are in most prevalent practice and which best illustrate the principles involved. The methods of most value for the student to understand are:

1. The labor percentage rate.
2. The labor hour rate.
3. The production center rate.

Labor Percentage Rate

The simplest method of apportioning manufacturing expenses is to obtain the ratio of the total manufacturing expenses for a certain period of time to the total cost of labor for the same period of time and then apply this ratio to the cost of labor consumed in the finished goods whose cost is being calculated. To illustrate: The total manufacturing expenses for six months are $20,000.00. The total cost of labor employed on all orders during the same period is $40,000.00. The manufacturing expenses for the period, therefore, are 50 per cent of the cost of labor. The cost of labor used on Production Order No. 1200, calling for the manufacture of 400 pieces of Commodity A is $600.00. Consequently 50 per cent of $600.00, or $300.00, will be added to the cost of Production Order No. 1200 for manufacturing expense. If the cost of the materials used on this order is $500.00, the total cost will be: Labor, $600.00; materials, $500.00; and manufacturing expense, $300.00, or a total of $1,400.00.

This method of apportioning expenses is satisfactory under certain circumstances. It is usually satisfactory if only one product is manufactured, since it is fair to assume under these circumstances that the ratio between labor and manufacturing expenses will be approximately the same on all orders. If two or more products are manufactured, the apportionment of manufacturing expenses on the basis of labor cost will be satisfactory if workmen employed on all commodities receive approximately the same wages and use similar equipment. In many cases, however, this method leads to inaccurate results. To illustrate: Production Order X and Production Order Y go through the factory at the same time. Very similar operations are performed on each, but the workmen employed on Order X receive a large wage because of their skill and long term of service, while the workmen employed on Order Y receive twenty-five per cent less in wages than those employed on Order X. In this case Order X will be charged 25 per cent more for manufacturing expenses than Order Y; yet the cheaper workmen require as much light, heat, and power as the higher-priced workmen. In fact, they may require more, for they may work slower and take longer to complete the order. The cheaper workmen also cause the machines to depreciate just as much as the better workmen, and because of a lack of skill they are more likely to make repairs necessary. This illustration shows that, unless the wages paid to workmen are fairly uniform, this method of apportioning expenses may lead to inaccurate results. The labor percentage method was the first method developed and is yet the one most widely used.

The Labor Hour Rate

Many of the expenses of manufacturing vary in proportion to time. Consequently a method of apportioning expenses has been developed which provides for charging each order for expenses according to the time occupied on the order. Under this method the total manufacturing expenses are divided by the total hours for which all workmen are employed, to obtain an hourly rate. Then the total hours of labor employed on any specific order are multiplied by the hourly rate to obtain the manufacturing expenses to be charged to the order. To illustrate: The total number of hours of labor for all workmen for a given period is 12,000, and the total manufacturing expenses for the same period is $2,400.00; therefore the cost of manufacturing expenses per labor hour is 20 cents. There has been expended on Production Order No. 800 two hundred hours of labor. The manufacturing expenses to be added to this order are $40.00.

This method of apportioning manufacturing expenses may be satisfactory if the equipment used throughout the factory is fairly uniform. If not, it may lead to unsatisfactory results. To illustrate: A factory produces two commodities, A and B. On Commodity A there is performed a large amount of hand work, and a large number of labor hours is required for its completion. Commodity B is manufactured almost entirely by machines, and it is produced with less labor hours than Commodity B. If manufacturing expenses are apportioned on the basis of labor hours, Commodity A will be charged a larger portion of the expenses than is Commodity B. Yet Commodity B requires the use of large machines with the consequent cost of power, repairs, etc., while Commodity A, being largely the result of hand work, requires the incurrence of very little expense of this nature. Commodity B therefore should be charged more for expense than A, but the labor-hour method of apportioning the expense produces the opposite result.

Production Center or Machine Rate

A third method of apportioning expense, which is intended to eliminate the objections sometimes urged against the labor percentage and labor-hour methods, is known as the production center or machine-hour rate.

Under this plan, each department of the factory is divided into "production centers." Each production center is a group of activities of the same kind or nature. It may be one machine, a group of machines of the same kind, a single hand workman, or a group of hand workmen doing the same thing. The expenses of the department are apportioned to the production centers and the total expenses incurred in operating each production center for a certain period of time is ascertained. This amount is divided by the number of hours during which operations are carried on at the center. This gives the hourly expense charge for operating this center. A record is kept of the hours each order is operated on at each production center, and the order is charged at the hourly expense cost for the manufacturing expenses incurred at the center.

To illustrate: The monthly expense cost of production center X is $400.00. The production center operates 200 hours during the month, so that the hourly expense charge is $2.00. Production Order No. 236 is operated on at production center X for five hours; consequently this order will be charged $10.00 for manufacturing expense incurred at this production center.

The apportionment of manufacturing expenses by means of production centers usually gives accurate results and is the most scientific method of apportionment for firms obtaining costs by production orders. The disadvantage of this method is the difficulty of determining the amount to be charged to each production center and the cost of keeping a record to show the number of hours each order is worked on at each production center. Because of these difficulties, business men have been slow to adopt this method.

Use of Standard Rate in Allocating Expenses

In the early development of cost accounting it was assumed by both accountants and executives that the manufacturing expenses incurred during each accounting period should be allocated to the product manufactured during that period. They thought their only problem was to work out a plan by which these expenses could be allocated in an equitable manner. During recent years many accountants and executives have challenged this assumption and probably the majority of accountants are opposed to such an assumption at the present time. Probably the new point of view is largely the result of the experiences of business firms during periods of depression. During such periods if all expenses are charged to the product produced during that period, the cost of the product of many firms would be exorbitant. For example, if a plant is running at 60 per cent capacity and allocates all the fixed charges of the plant against the goods produced, the unit costs will be far greater than if the plant was operating at full capacity. If these costs are used as a basis for establishing selling prices, competitors are very likely to secure the business. As sales fall off, there will be a further decrease in production with a further increase in cost with a consequent increase in sales price resulting in a decrease in sales, and so on around the circle.

Faced by this situation accountants and engineers have sought to develop some method of handling manufacturing expense which would provide for the charging to the product of each period only those expenses which would normally be incurred in its production. To this end they develop predetermined or standard rates which provide for charging the product with the same amount of expenses it would have been charged with if the plant was running at normal capacity. In the establishment of normal capacity, the production of past years when the plant was operating under normal conditions is taken as a basis. The actual manufacturing expenses are charged to the departmental expense accounts. These accounts are credited and work-in-process accounts debited for the standard rate of overhead. The balance of the departmental expense accounts is transferred to the profit-and-loss account. Under this plan the departmental expense accounts will usually show debit balances during periods of depression and credit balances during periods of prosperity when the plant is running at full capacity or possibly operating overtime. The over- or underabsorbed burden as shown by the departmental accounts indicates to the management the extent to which the factory capacity is being utilized. This is useful information in planning the sales, production, and advertising campaigns.

Recording of Manufacturing Expense

Most of the original entries to the primary expense accounts are made through the voucher record. The distribution of expenses to the departmental accounts is made through the journal. Two major items of manufacturing expense are indirect labor and indirect material. The nature of the labor performed by each workman is shown by the time tickets. The pay-roll or the cost-accounting department prepares an analysis of the payroll which shows the direct and indirect labor by departments. From this analysis appropriate entries are made in the voucher record, which result in the appropriate charges to the departmental expense accounts. Materials and supplies are charged to control accounts through the voucher record. When materials are withdrawn from the storesroom, the requisitions show the purpose for which they are to be used. From these requisitions the accounting department can ascertain the amount to be charged to the departmental expense accounts and make the appropriate journal entries.

The invoices for taxes, insurance, and similar items are entered in the voucher record and the appropriate control accounts charged. At the end of the accounting period appropriate journal entries are made to distribute these amounts to the departmental expense accounts. The amount of the depreciation on plant and equipment can be ascertained by departments from the plant ledger and charges made directly to the departmental expense accounts. At the end of the period the appropriate journal entries are made to distribute the expenses of the non-manufacturing departments, to the expense accounts of the manufacturing departments, and in turn transfer these accounts to the proper goods-in-process accounts.

QUESTIONS FOR CLASS DISCUSSION

1. "Indirect costs are those which cannot be charged economically or directly to the product." Give illustrations of costs which can be definitely connected with the product but which cannot be economically charged to it.
2. Explain and illustrate the difference between fixed and variable expenses. Of what significance is this distinction in controlling manufacturing expenses?
3. The X Manufacturing Company produces only to order while the Y Manufacturing Company produces for stock only. Will the difference in the production policies of the two companies affect the method of preparing its estimate of manufacturing expense?
4. The Cheney Manufacturing Company finds that last year its production volume was 1,000 tons and that its manufacturing expense averages $10.00 a ton. It plans to produce 2,000 tons during the next year and estimates that its manufacturing expense will be $20,000.00. Do you agree that this is a fair estimate?
5. What are the advantages and disadvantages of the miscellaneous expense budget?
6. "It is emphasized throughout this text that budgets should be prepared in terms of units of responsibility." What does this mean?
7. Explain the conditions under which the budget committee may think it necessary to revise the manufacturing expense estimate.

8. "The production manager and his staff should study the estimate carefully to see if it is in harmony with the production policies they have agreed upon." Suggest policies which might cause a revision of the estimate of manufacturing expense.
9. Explain and illustrate the advantages of a departmental classification of manufacturing expenses. Explain the accounting involved in its maintenance.
10. Explain the basis on which the cost of each of the following may be allocated to departments: (1) insurance, (2) taxes, (3) light, (4) heat, (5) depreciation, (6) repairs, (7) indirect materials, (8) indirect labor, (9) planning department, (10) staff of production manager.
11. Explain the operation of each of the following methods of apportioning manufacturing expenses to product: (1) labor-percentage rate, (2) labor-hour rate, (3) production-center rate. Explain under what circumstances you would advise the use of each of these methods.
12. "The purpose of the accounting records is to show what *has* happened, not what *might* have happened; therefore, all expenses incurred during a period should be charged to the cost of the goods produced during that period." Do you agree?
13. "The purpose of standard rates is only to distribute the manufacturing expenses equally over the periods of small and large volume of production." Do you agree?
14. Explain the method by which standard rates should be developed.
15. "A separate standard rate should be established for variable expenses and for constant expenses." Do you see any benefit in this plan?

EXERCISE NO. 43

The American Manufacturing Company has four departments, one for each process of the sole product manufactured. The income and expense account for the year ended December 31, 1920, as prepared from the books is as follows:

Sales		$12,000,000
Cost of sales:		
Material	$4,100,000	
Labor	2,500,000	
Overhead	3,000,000	
Decrease in inventory	300,000	9,900,000
Gross profit		$ 2,100,000
Selling and administrative expenses		900,000
Net profit		$ 1,200,000

The president is skeptical of the results as shown by this statement and requests you to make an analysis of the cost data for the year and to present to him a statement of income and expense based on this analysis.

Acting under the president's instructions you ascertain the following:

1. That the inventory on January 1, 1920, is as follows:

	Total	Department A	Department B	Department C	Department D
Raw material	$ 475,000	$ 27,000	$ 15,000	$ 33,000	$400,000
Work in process:					
Material	925,000	160,000	200,000	240,000	325,000
Labor	200,000	80,000	60,000	48,000	12,000
Overhead	250,000	100,000	75,000	60,000	15,000
Finished goods:					
Material	200,000	200,000	....	....	....
Labor	120,000	120,000	....	....	....
Overhead	150,000	150,000	....	....	....
	$2,320,000	$837,000	$350,000	$381,000	$752,000
Supplies, etc	80,000	....	....	....	....
Total	$2,400,000	....	....	....	....

D is the first department; A is the finishing department. The work in process and the finished goods in Department A include labor incurred on the goods irrespective of which of the four departments the labor was performed in. Similarly with regard to goods in Departments B and C, which goods are inventoried to include labor performed in three and two departments, respectively. You find it impracticable to analyze the inventory farther to show in which department the labor was incurred.

2. That an analysis of material, labor, and overhead expenses for the period shows:

Department	Material	Labor	Overhead
A	$ 200,000	$ 700,000	$ 350,000
B	200,000	700,000	700,000
C	400,000	800,000	1,200,000
D	3,300,000	300,000	250,000
All departments	....	....	500,000
Total	$4,100,000	$2,500,000	$3,000,000

3. That on December 31, 1920, prior to adjusting the book inventory account to the valuation of the physical inventory, the balance of that account (for raw material, work in process, and finished goods) is $1,920,000.

The physical inventory prepared by the company is as follows:

Raw material		$ 181,000.00
Work in process:		
Material	$1,000,000.00	
Labor	300,000.00	
Overhead	360,000.00	1,660,000.00
Finished goods:		
Material	$80,000.00	
Labor	45,000.00	
Overhead	54,000.00	179,000.00
Total		$2,020,000.00
Supplies, etc.		80,000.00
Total		$2,100,000.00

Your analysis shows:

	Total	In Department A	In Department B	In Department C	In Department D
Raw material	$ 181,000	$ 6,000	$ 10,000	$ 20,000	$145,000
Work-in-process material	1,000,000	180,000	220,000	350,000	250,000
Labor incurred in Departments:					
A	58,000	58,000	....	....	....
B	90,000	45,000	45,000	....	....
C	47,000	12,000	15,000	20,000	....
D	105,000	15,000	20,000	30,000	40,000
Total	$300,000	$130,000	$ 80,000	$ 50,000	$ 40,000

Finished goods:	
Material	$80,000.00
Labor incurred in Departments:	
A	9,000.00
B	14,000.00
C	7,000.00
D	15,000.00
Total	$45,000.00

Required

1. Ascertain the amount of manufacturing expense chargeable to the ending inventory of goods in process and finished goods and prepare a revised statement of income and expense. Manufacturing expenses are distributed on the basis of direct-labor cost.

2. Prepare a memorandum to the president outlining a procedure by which the company can obtain departmental costs.

REFERENCES FOR FURTHER STUDY

1. Carlson, "Budgeting Factory Overhead," *Factory*, August, 1921.
2. Jordan and Harris, *Cost Accounting*, chaps. xvii and xviii.

CHAPTER XXIX

METHODS AND PROCEDURES FOR COST-FINDING

Relation of Cost Accounting to Production Control

It has been suggested in chapter xxiv that cost accounting is one of the administrative devices employed in production control. It is a trite statement that the primary purpose of business operations is profits. Consequently all methods and procedures must be judged in terms of profits. Production methods are no exception to the rule—in fact due to their complexity and the consequent difficulty of their operation, there is probably more need for their subjection to this test than there is in the case of the methods of other departments. To determine the results of different production policies and methods, comprehensive information concerning production costs is necessary. To secure this information in an efficient manner it is necessary to develop a "cost accounting system."

"Cost accounting" is as applicable to a mercantile business as to a manufacturing business and is also as applicable to the control of the commercial expenses of a manufacturing business as to the control of manufacturing costs. In the present chapter, however, we are considering the term in the narrow sense and will restrict the present discussion to a treatment of production costs. The use of cost accounting for the other purposes mentioned is considered in other chapters.

Types of Cost Systems

Costs must be obtained under widely differing conditions and this necessitates the use of different methods of cost finding. Not only must different methods be used in different firms but even in the same firm different methods will be used in finding the cost of different products and, furthermore, different methods may be used in finding the cost of different processes on the same product. The cost accounting systems in most prevalent use seek to ascertain costs by one of the following: (1) production orders, (2) processes, (3) classes.

Production-Order Method

When this method is used, a production order is issued for a definite number of units of a commodity and a record is kept of the materials and labor used in the manufacture of this order. When it is completed the manufacturing expenses applicable to the order are estimated by one or more of the methods discussed in chapter xxviii and by adding the manufacturing expenses thus determined to the labor and materials already charged to the order, its total cost is obtained. A separate account is kept in the cost ledger for each order in process of manufacture. These separate accounts are subsidiary to the controlling account with work in process which is maintained on the factory ledger.

The Process Method

In some firms the production-order method cannot be used. This is usually because the nature of the articles manufactured is such that it is impossible to keep a certain quantity, such as is represented by a production order, segregated from the other articles as it passes through the factory. For example, a company manufacturing a liquid, such as ink, has hundreds of gallons passing through the various processes at one time. It is impossible to identify any specific quantity, for example, 100 gallons, and to follow it through the various processes in the manner it is possible to follow through the cost of a hundred books passing through a printing plant. A similar situation exists in the manufacture of paints, soap, paper, canned goods, and similar articles.

In such cases it is necessary to use the process method of determining costs. Under this method a record is kept of the material and labor costs of each process through which the raw material must pass to become the finished product. The manufacturing expense is distributed to processes according to the method of apportionment in use. The total cost of materials and labor for each process plus the manufacturing expense applicable to that process will give the cost of passing a certain quantity through the process. The cost per unit (pound, gallon, dozen, etc.) for this process is obtained by dividing the total cost of the process by the number of units produced. In this way the unit cost for each process is obtained, and by adding these for the entire manufacturing process the total unit cost is secured.

In some cases the unit cost by processes is not obtained, but, instead, the total cost for all processes is determined, and this is divided by the total units completed to obtain the total-unit cost. To illustrate the method of securing process costs, it may be assumed that a certain quantity of paper is to be produced which in the course of manufacture passes through four processes. The cost of the materials and labor in the first process is $200.00; the cost of the materials and labor in the second $120.00; the cost of labor in the third, $80.00; and the cost of materials and labor in the fourth $160.00. The manufacturing expense chargeable to the four processes is: first, $40.00; second, $70.00; third, $30.00; and fourth, $60.00. The total cost of the four processes is $760.00. If 15,200 pounds of paper are obtained, the cost per pound is 5 cents.

The Class Cost Method

In some lines of business goods are produced on production orders calling for a definite amount, but costs by orders are not significant and are unnecessarily expensive. In such cases it is sometimes possible to combine for cost purposes the production orders for the same or similar commodities and to secure costs by classes. This method of cost-finding has been used extensively in foundries. Castings are divided into classes on the basis of design, size, and weight. Materials, labor, and manufacturing expense are assembled by classes and the cost per casting obtained for each class. Under this plan when an estimate is asked on a new casting, it is first classified and then its cost determined by the average cost of its class as shown by records of previous production. For example, all castings of a certain design weighing between 10 and 15 pounds are put in one class, those weighing between 15 and 20 pounds in a second class, and so on. It has been found that average class costs are more useful than order costs in making estimates, for the order costs vary so greatly that they are unreliable.

Joint- and By-Products Costs

The preceding discussion has dealt with the ascertainment of costs in the case of the typical manufacturer where the cost of the materials going into the finished product is readily ascertainable. In some lines of business this situation does not prevail. For example, in the packing business the raw material is purchased in the form of a live animal which is divided into many parts, each of which later becomes a finished product. It is a difficult problem to ascertain how much of the cost of the live animal should be charged against each of these various finished products. The problem involved is well illustrated by the following:

> To explain the packer's cost-finding methods we will take the problem of the butcher who buys a steer weighing 1,000 pounds alive, and for which he pays $100. When he has slaughtered and dressed it he will have a dressed carcass of beef weighing about 500 pounds, a hide, some fats, a tongue, a heart, a liver, and many other by-products.
>
> He knows that he can sell the hide for $20, the fats for $3, and the other by-products for $2, a total of $25 worth of by-products. He knows that the slaughtering and dressing has cost him $5. He will figure the dressed cost of the carcass of beef in this manner:

Paid for live steer weighing 1,000 lbs.	$100
Expense of slaughter and dressing	5
Total cost of dressed beef and by-products	$105
Can sell by-products to net	25
Balance cost of 500 lbs. of dressed beef	$ 80

> or an average of 16 cents per pound.

This is the only known method of computing the cost of a dressed carcass; and it is the method that the packer must follow if he is to conduct his business intelligently.

The determining of costs in the present-day packing business is not quite such a simple affair as the foregoing illustration might make it appear. The live cost is readily available from the scale ticket or invoice covering the purchase of the live stock. The values of the by-products, however, are affected by many factors. The market values for these by-products must be based on or computed from the market value of the processed or manufactured by-product.

Hide values are based on the market for cured hides. Fat values are based on the markets for oleo oil, stearine, tallow, grease, and tankage, which are the manufactured products coming from fats. And so with many other by-products. While some of these by-products may be sold in their green or unprocessed state, it would be impossible for the average packer to market the bulk of them in this condition. In fact the processing of these by-products to their first manufactured marketable stage is an integral part of the operations of any present-day slaughtering and packing establishment.

In valuing these by-products the current market prices are used. On most of these products price quotations change from week to week and in some cases from day to day, so that the schedules upon which costs are computed must be revised from week to week or day to day in order that the costs ascertained will be accurate current costs.

Computing the values of these by-products in their green or unprocessed state means figuring the values backward through the manufacturing or processing operations. For instance, hides as taken off at time of slaughter are much heavier than the cured hide which will be marketed later. In finding the value of the green-hide from the cured-hide market, this shrinkage must be taken into account. To ascertain the value of fats, it is necessary to know the percentage and quality of yield in oleo oil and stearine, or tallow, grease, and tankage, as it is in these forms that the fats are marketed.

Live-stock purchases are usually made by lots. This is always true of cattle, calves, and sheep. As a rule these lots are killed out separately in the packing house and the costs are computed for each lot. For each lot the accounting staff must know the live cost, the live and dressed weights, the weights and grades of the hides, the weights of the important fats, losses from condemnations, shrinkage, etc. in order to compute costs. It is from these cost sheets that the charges to the various departments of the business are made covering the by-products transferred to each one.[1]

[1] Adapted from *The Theory of Packing-House Accounting*, Institute of Meat Packers, pp. 8–9.

Illustration of Production-Order Method

To indicate the mechanism of cost-accounting procedure a possible procedure for a production-order system is outlined in the following pages. This method is used for purposes of illustration because it shows most clearly the procedure involved in gathering cost data and the relation of cost records to production. The student should be able to adapt the general procedure here outlined to other types of cost systems with which he may come in contact.

Initiation of Production

The first step in the production process is the forwarding of a notice of minimum by the balance-of-stores section to the production-order section of the planning department. In response to this notice the production-order section prepares a production order and the relevant suborders including time tickets and move orders for materials, and forwards these to the factory-schedule section. When this section releases the production order to the factory, it forwards one copy to the cost-accounting section. This serves notice to the cost-accounting section that the order is passing through the factory and consequently it opens an account with the order in the cost-accounting ledger, which is usually a loose-leaf record, each leaf being ruled to show the necessary cost data on one order (see Chart LI).

Assembling Materials Costs

When the factory schedule section releases the production order it sends the *move* orders or issue tickets to the materials storesroom. The storesroom will deliver the materials to the proper department and will then fill in the issue ticket to show this fact and have it receipted by the foreman of the department to which the materials have been delivered. The issue ticket will then be sent to the materials balance-of-stores section for entry on its records. The balance-of-stores section after entering the issue ticket will show on it the unit price of the articles for which

CHART LI[1]

HOLDEN MANUFACTURING CO
BOSTON, MASS.
COST SHEET

Name of Article		Order No.
Description		Part No.
	Unit	Size
Account	Qty. Completed	Class

Dept.	Mach. No.	Operation	Qty.	Direct Labor Hours	Direct Labor Amount	Mach. Hrs.	Burden				Total Burden Amount	Total Labor Burden	Cost per Unit
							Regular		Mach. Rate				
							Rate	Amount	Rate	Amount			
Total Labor & Burden													

MATERIAL COST

Part No.	Spec.	Description	Qty.	Price	Amount	Cost per Unit

Order History			Remarks			
	Date	Qty.		Total Material		
Ordered				Total Plant Cost		
Started				Admin. & Selling %		
Completed						
Compiled	By			Total Cost		

[1] Taken from Jordan and Harris, *Cost Accounting*.

it calls and will then forward it to the cost-accounting section where it is entered in the cost-accounting ledger as a charge against the proper production order. The issue ticket always bears the number of the order on which the material for which it calls is to be used, so it is not difficult to determine the account in the cost ledger to which each ticket should be charged.

As the order passes through the various departments, additional material may be needed. If so, it will be issued in response to an issue ticket and this ticket after passing through the procedure outlined above will finally reach the cost-accounting section where it will be charged against the order. If any materials have been issued to be used on an order and for any reason are later returned to stock, a credit memorandum is made out, and after entry on the stock records is sent to the cost-accounting section for entry in the cost ledger. By this means it is possible to ascertain the total cost of the material employed on the order.

Assembling Labor Costs

Each time ticket shows the number of the production order on which the labor for which it serves as a record was performed. After the pay-roll is prepared the time tickets are assembled by production-order numbers and entered in the cost-accounting ledger as a charge against the proper production order. In this manner all labor chargeable to each production order is shown on the appropriate cost sheet.

Charging Manufacturing Expenses to Production Orders

The materials and labor used on each production order can be definitely connected with the order by means of the material requisitions and time tickets. Manufacturing expenses, however, cannot be definitely attached to any specific order. After the manufacturing process is complete and all the charges made to the order, it is then necessary to estimate the manufacturing expenses applicable to the order by one of the means discussed in the preceding chapter.

Finished-Goods Report

When the goods called for by the production order are completed they are delivered to the storeroom. Before placing the goods in stock, they are subjected to the scrutiny of an inspector to determine if they are in proper condition. The inspector or the stores department prepares a report showing the number of pieces delivered into stock. One copy of this report is sent to the planning department, another is sent to the cost-accounting section, and a third is sent to the balance-of-stores clerk. The planning department needs this report so that it can remove the order from the planning-schedule board. The balance-of-stores clerk uses it as a basis for entries in his records to take up the finished goods. The copy which goes to the cost-accounting section notifies this section that the production order is completed, and it can then proceed to determine the cost of the order.

Summarizing Cost of Order

The method of entering the cost of materials and the cost of labor on the cost sheet has been explained in preceding paragraphs. After the entries are made for these costs, the manufacturing expense chargeable to the order will be entered. The amount of this expense will be determined by the method of apportionment employed by the business. If the percentage of labor rate is employed, the proper percentage will be applied to the cost of labor as shown by the cost sheet and the result recorded in the expense column. If the labor-hour rate is used, the hourly rate will be multiplied by the number of hours shown on the cost sheet to obtain the amount of the expense. If the production-center rate has been adopted, the hourly rate for each production center will be multiplied by the number of hours the order was operated on at this center.

After the entries for manufacturing expense, labor, and materials are made on the cost sheet, it is totaled and ruled to show the cost of producing the goods called for by the order.

The total shown on the cost sheet is entered in the finished-goods journal. This journal will be ruled to show: (1) date; (2) production-order number; (3) folio; (4) amount column for each commodity or group of commodities manufactured. At the end of each cost period the totals of each amount column in the finished-goods journal will be posted to the debit of the finished-goods account maintained with the commodity shown in the column and credited to the manufacturing account or work-in-process account maintained with the same commodity.

The Entries to the Cost Accounts

In a small business all the ledger accounts dealing with factory costs are kept on the general ledger. In a large business a factory ledger is maintained which contains the accounts directly related to factory operations. An account on the general ledger termed *Factory Ledger* serves as a controlling account for the factory ledger.

When only one ledger is kept the following entries show the relation of the various accounts to each other:

1. When materials are purchased

Materials	——	
Accounts payable		——

Entries will be made in the voucher register for each invoice and the totals posted at the end of the cost period.

2. When materials are transferred from the storesroom to the factory:

Materials in process	——	
Materials		——

Entries will be made in the *requisition journal* from the materials requisitions on which materials are issued from the storeroom.

3. When the wages due factory employees, as shown by the time tickets, are recorded:

Labor	——	
Accounts payable		——

Entries will be made in the voucher register from the pay-roll prepared by the pay-roll section of the accounting department and the totals posted at the end of the cost period.

4. When manufacturing expenses are incurred:

Manufacturing expenses (Separate account for each class)	——	
Accounts payable		——

Entries will be made in the voucher register from the invoices received for these expenses. There will be some expenses such as depreciation, which will be entered through the general journal. Additional entries are necessary to set up departmental expense accounts and to distribute expenses of non-manufacturing departments to manufacturing departments. These entries are omitted here for the sake of simplicity.

5. When the ledger accounts are closed, at the end of the cost period:

Manufacturing account or Work-in-process account	——	
Materials in process		——
Labor		——
Manufacturing expense		——

A separate manufacturing account or work-in-process account may be maintained for each commodity or class of goods manufactured. The foregoing entry will be made through the journal or by means of a journal voucher.

6. When finished goods are transferred from the factory to the finished-goods storeroom:

Finished Goods	——	
Manufacturing or work in process		——

This entry will be made from the completed cost sheets through the finished-goods journal in the manner explained in the preceding paragraphs.

7. When finished goods are sold two entries are made:

a) Cost of sales............ ———
    Finished goods.............. ———
b) Accounts receivable...... ———
    Sales...................... ———

These entries are usually made from the invoices through the sales record.

If a factory ledger is maintained the foregoing entries will be made as follows:

1. When materials are purchased

a) On factory ledger
    Materials........... ———
        General ledger........... ———
b) On general ledger
    Factory ledger....... ———
        Accounts payable........ ———

2. When materials are transferred from storesroom to factory

a) On factory ledger
    Materials in process.. ———
        Materials............... ———

3. When the wages due factory employees, as shown by the time tickets, are recorded:

a) On factory ledger
    Labor.............. ———
        General ledger............ ———
b) On general ledger
    Factory ledger....... ———
        Accounts payable........ ———

These entries are made on the assumption that the wages are paid by the general office. When the factory is located at some point other than the general office, the factory may pay for its labor, in which case the entry is on the factory ledger only and is as follows:

Labor	———	
Accounts payable.		———

4. When manufacturing expenses are incurred:

a) On factory ledger

Manufacturing expenses	———	
General ledger.		———

b) On general ledger

Factory ledger.	———	
Accounts payable.		———

5. When the ledger accounts are closed at the end of the cost period:

a) On the factory ledger

Manufacturing account or work-in-process account.	———	
Materials in process.		———
Labor.		———
Manufacturing expense. . .		———

6. When finished goods are transferred from the factory to the finished-goods storeroom:

a) On the factory ledger

Finished goods	———	
Manufacturing account or work-in-process account.		———

7. When the finished goods are sold:

a) On factory ledger

General ledger.	———	
Finished goods		———

b) On the general ledger

(1) Cost of sales	———	
Factory ledger.		———
(2) Accounts receivable. .	———	
Sales		———

At the end of the period cost of sales is offset against sales to determine the gross profit on sales.

The student should not regard the accounting procedure outlined in this chapter as an arbitrary one. For the sake of simplicity and brevity variations in procedure have not been discussed, but the student will realize that such variations are frequent and important. The procedure given, however, is indicative of the general principles involved in all cost-accounting procedures.

QUESTIONS FOR CLASS DISCUSSION

1. "It is well to point out that cost accounting is as applicable to a mercantile business as to a manufacturing business and is also as applicable to the control of commercial expenses of a manufacturing business as to the control of manufacturing costs." Give illustrations to substantiate the foregoing statement.
2. "Costs must be obtained under widely differing conditions and this necessitates the use of widely different methods." Illustrate.
3. Give commodities where each of the methods of cost-finding discussed in this chapter will be used in determining their cost.
4. Give three methods which may be used in valuing by-products when they are transferred for processing into a finished product.
5. How can the cost-accounting section identify the materials and labor used on an order with that order?
6. The Peters Manufacturing Company manufactures standard articles, and consequently produces these in advance of customers' orders and places them in stock. The Jackson Manufacturing Company manufactures to order, each order being made according to the specifications of the customer. In what way would the problem of cost-finding in the two companies be different?
7. State the information it is necessary to obtain from the labor tickets and explain how this information is secured.
8. How does the cost-accounting section know when the goods called for by a production order have been completed and delivered to the storeroom? What does this section do when it receives this information?
9. State the information contained on the "cost sheet" and explain how this information is obtained.
10. The X Manufacturing Company purchases steel castings to be used in the manufacture of one hundred machines. Explain the entries which

will be made in the accounts from the time the castings are purchased until the finished machines are sold.

11. Define and illustrate the following: constant costs, variable costs, direct costs, indirect costs, burden, overhead, indirect labor, productive labor, manufacturing expense, indirect material.

EXERCISE NO. 44

The Kirker Manufacturing Company maintains a factory ledger in which is kept accounts showing the cost of factory operations. This ledger is controlled by a factory-ledger account in the general ledger. The following is the trial balance of the factory ledger of the company on January 31, after one month's operations and before all the entries have been made:

General ledger account		$27,145.50
Materials	$23,000.00	
Work in process	1,450.00	
Power expenses	740.00	
Building expenses	880.00	
General factory expenses	90.50	
Dept. A, carpenter shop	310.00	
Dept. B, machine shop	575.00	

Department A covers 6,000 square feet and uses 100 horse-power.

Department B covers 10,000 square feet and uses 500 horse-power.

The balance in the materials account represents the purchases to date, and the work-in-process balance represents the inventory, July 1, as follows: Order No. 1001, $400.00; Order No. 1002, $300.00; Order No. 1003, $750.00.

The timekeeper submits the pay-rolls and these, when analyzed, are found to consist of the following:

General superintendent	$150.00
Foreman and clerk, Dept. A	120.00
Foreman and clerk, Dept. B	135.00
Watchman	40.00
Engineer and fireman	160.00
Dept A., mechanics:	
On Order No. 1001, 2,000 hours	800.00
On Order No. 1002, 1,500 hours	450.00
On Order No. 1003, 2,000 hours	600.00
Dept. B, mechanics:	
On Order No. 1001, 1,500 hours	400.00
On Order No. 1002, 2,500 hours	600.00
On Order No. 1003, 1,000 hours	300.00

The storeskeeper turns in requisitions for materials used, which are analyzed and found to be for the following:

Supplies, Dept A	$ 50.00
Supplies, Dept. B	75.00
Order No. 1001	900.00
Order No. 1002	300.00
Order No. 1003	800.00
Repairs, Dept. B	160.00

The storeskeeper reports the completion of the orders and the receipt in the storeroom of: Order No. 1001, 3,000 pieces; Order No. 1002, 1,500 pieces.

The storeskeeper also reports the shipment of goods, which being priced and totaled are found to have cost $12,000.00. The company charges 60 per cent of the cost of labor for manufacturing expenses in Department A, and fifty cents per labor hour for manufacturing expense in Department B.

Required

1. Make journal entries to give effect to the above.
2. Construct ledger accounts.
3. Take a trial balance.

EXERCISE NO. 45

The McMahon Lumber Company classifies its operations under the following heads: logging (wood) transportation (to pond at sawmill), sawmill, kiln drying.

The following is the trial balance of the factory ledger after all of the known expenses of operation have been charged, but before the reports of operating foremen have been received. The various inventory accounts represent the balances at the beginning of the month before the month's operations have been entered.

General ledger		$42,880.50
Logs in woods, 700,000 feet	$ 4,200.00	
Logs in pond, 1,000,00 feet	7,000.00	
No. 1 Lumber, green, 350,000 feet	5,250.00	
No. 2 Lumber, green, 500,000 feet	5,000.00	
No. 1 Lumber, dried, 200,000 feet	3,400.00	
Slabs, 300 cords	600.00	
Power expenses	700.00	
General operating expense	1,200.00	
Logging expense	6,200.00	
Transportation	1,625.00	
Sawing	7,205.50	
Dry kiln expense	500.00	
	$42,880.50	$42,880.50

Report from woods foreman:	
Logs cut	1,550,000 feet
Report from transportation foreman:	
Logs hauled to sawmill pond	1,350,000 feet
Report of sawmill superintendent:	
Logs sawed	1,400,000 feet
Lumber produced, No. 1 Grade	500,000 feet
Lumber produced, No. 2 Grade	800,000 feet
Slabs cut	175 cords
Dry kiln report:	
Lumber dried during month—	
No. 1 Grade	300,000 feet
Shipping clerk's report:	
No. 1 green lumber shipped	250,000 feet
No. 2 green lumber shipped	600,000 feet
No. 1 dried	150,000 feet
Slabs shipped	250 cords

Stumpage (standing trees before operations are begun) is to be credited at $1.50 per thousand for all logs cut. The stumpage account is maintained on the general ledger.

Power is to be charged 60 per cent to sawmill and 40 per cent to kiln.

General operating expense is to be distributed half to logging and half to sawmill.

Manufacturing expenses are to be divided between No. 1 lumber and No. 2 lumber on the basis of the feet produced.

Slabs are worth $2.00 a cord.

Required

1. Make the journal entries to put the foregoing on the books and to close the accounts.
2. Construct the ledger accounts to show the foregoing.
3. Take a trial balance.

REFERENCES FOR FURTHER STUDY

1. Jordan and Harris, *Cost Accounting*, chaps. xxiv and xxv
2. Sanders, *Problems in Industrial Accounting*, chap. ii.

CHAPTER XXX

PRODUCTION ORGANIZATION AND REPORTS

Organization of Production Department

Any discussion of the organization of the production department must be suggestive rather than inclusive, because of the wide variations in practices. Firms with widely different forms of organization seem equally prosperous and we have no standard which enables us to say arbitrarily that one form is correct and the other forms incorrect.

If a business has but one factory, there is usually an executive head of the production department who is termed the "works manager," or "production manager." If a business has two or more factories, there may be a works manager for each factory and a vice-president in charge of production who has central control of the production in all factories. The head of the production department reports directly to the president or general manager. He has subordinate to him various departments, the number of which depends to a considerable degree on the volume of production and the degree to which scientific production control is practiced.

The departments under the control of the head of the production department which are of most importance from the point of view of our present discussion, are:

1. The designing or engineering department which is responsible for determining the form or design of what is to be produced —what materials are to be used and their disposition in the article to be manufactured.

2. The planning department which is responsible for determining how it is to be produced and when the various steps incident to its production are to be taken.

3. The manufacturing department which is responsible for the performance of the physical work necessary to the production of the article in accordance with the plans of the designing and planning departments.

Other departments or divisions which may be found in the production department are:

4. Maintenance department which is responsible for the repair and upkeep of the equipment and plant.

5. Stores department which is responsible for the storing and care of the materials and finished goods in stock.

6. Shipping department which is responsible for preparing for shipment the goods sold.

7. Receiving department which is responsible for the receipt of goods purchased, their unloading and delivery to storerooms.

8. Inspection department which is responsible for inspecting and reporting on the quality of the goods purchased and produced. It may or may not report on the quantity also.

The manufacturing department is usually divided into sub-departments with a foreman as the administrative head of each. These foremen report to the superintendent of production who is head of the manufacturing department. He in turn reports to the production manager or works manager. The foremen are in addition under the functional control of the planning department which directs what, when, and how goods are to be produced.

Production Reports

The reports used in controlling production operations are more varied in nature than those used in controlling the operations of any other department. This is due to the complexity of production operations and the wide variance between the operations of different manufacturing firms. It is difficult, therefore, to classify production reports, but in general they fall into three broad groups.

1. General reports dealing with the operations of the factory as a whole and intended for the use of both the production executives and the general officers.

2. Departmental reports showing the operations of specific departments and intended for the use of the production executives and the heads of the departments.

3. Reports dealing with the cost and use of (*a*) materials, (*b*) labor, and (*c*) manufacturing expenses.

A few illustrations will be given of each type of report.

A. General Reports

Monthly Summary of Orders Received, Shipments, Production, and Unfilled Orders

The production executives and general officers are always interested in the quantity of orders received during each period, the shipments made in satisfaction of orders, the quantity of goods produced, and the orders unfilled at the end of the period. This information is more useful if it is shown in such form that comparisons can be made between the current period and the last period, also between this year to date and last year to date (See Chart LII).

Significant information can be obtained by comparing the trends of the different items. For example, the volume of production should not normally show an upward trend for any considerable period of time, while the volume of orders received shows a downward trend. Again an upward trend in the volume of production without a corresponding trend in the volume of shipments indicates an increase in inventories. A decrease in the volume of unfilled orders is considered an important sign of decreasing prosperity in some lines of business, for example, the steel industry. Correspondingly an increase in the volume of unfilled orders is regarded as an encouraging sign. Of course the volume of unfilled orders may be affected by changes in the

CHART LII

NAME OF COMPANY... WEEK ENDING..........................

WEEKLY REPORT OF SALES AND PRODUCTION OF MACHINES

	MACHINES			MACHINES IN STOCK													ORDERS			ASSEMBLY ORDERS	
MODELS OR SIZES	IN STOCK LAST WEEK	COMPL. DURING WEEK	SHP'D DURING WEEK	SHOP		BUFFALO	CHICAGO	CLEVE-LAND	DETROIT	INDIAN-APOLIS	NEW YORK	PHILA-DELPHIA				TOTAL	UN-FILLED LAST WEEK	REC'D DURING WEEK	UN-FILLED THIS WEEK	IN SHOP	FOR DELIVERY
TOTALS																					

MACHINES IN STOCK..................

NET SELLING PRICE..................

COST PRICE..................

CHART LIII

MONTHLY SUMMARY OF PRODUCTION

Works Month of 192

	Group	This Month	Estimated This Month	Percent Increase or Decrease	Last Month	Percent Increase or Decrease	Same Month Last Year	Percent Increase or Decrease	Total to Date This Year	Total to Date Last Year	Percent Increase or Decrease
100	Cast iron										
200	Iron body										
300	Brass										
400	Tools										
500	Walmanco										
600	Nipples										
700	Malleable										
1800	Kewanee specialties										
1900	Drive well points										
	Total										

volume of production, and in the case of any specific business such changes may be very significant.

Monthly Summary of Production

A report showing with proper comparisons the volume of production classified by major groups of products is useful in controlling production volume. Chart LIII shows a possible form for this purpose. The illustration shows a classification of products by major groups. This method leads to indefiniteness since there are several commodities included under each group. It is the only practical method to follow, however, in a company manufacturing a wide variety of products. Where only a few products are manufactured each product should be shown separately on the report. If a company has more than one factory, a separate report can be made for each factory and these can then be combined into a summary report covering all factories.

Monthly Summary of Operations

The production executives and the general officers of the company should have a comprehensive picture of the factory operations for each period. A useful form of report for this purpose is shown in Chart LIV. The purpose of the data shown by this report is apparent.

In some cases the classification of cost elements shown in the first column will need to be changed. It can be made to suit the needs of each case.

It should be noted that plant and equipment in process is carefully separated from the product in process. This is quite important, for otherwise the information shown by this report is often misleading. In periods of low sales an extra amount of construction work may be carried on which will result in increased inventories of work in process if the classification shown by Chart LIV is not made.

CHART LIV

MONTHLY SUMMARY OF OPERATIONS

________________Works Month of______________192___

Item	This Month	Estimated This Month	Percent Increase or Decrease	Last Month	Percent Increase or Decrease	To Date This Year	To Date Last Year	Percent Increase or Decrease
Direct material								
Direct labor								
Indirect labor								
Factory supervision								
Other expense								
Total factory cost								
Less increase in work in process inventories								
Less increase in plant and equipment inventories								
Add decrease in work in process inventories								
Add decrease in plant and equipment inventories								
Less plant and equipment charges								
Factory cost of production								

Monthly Report on Departmental Unit Costs

This report (see Chart LV) provides useful data in a business where unit costs can be obtained for several departments. The illustration given shows pound costs but any other unit can be used which the circumstances require. This report gives useful comparison in two ways. First, it shows comparative costs for each department. The average costs of previous periods are used as a standard with which to measure current costs. Secondly, it makes possible a comparison of the trend of costs in the different departments. This is a useful comparison for it makes possible the detection of departments whose costs are not in harmony with the cost trend of the majority of the departments. This makes possible the quick detection of unfavorable trends and the possible elimination of the causes for these.

B. Departmental Reports

Monthly Analysis of Foundry Operations and Costs

The report shown in Chart LVI (p. 634) shows a useful analysis of the operations and costs of a foundry. A foundry report is useful for purposes of illustration, for it can be made to show interesting statistical data. Chart LVI, for example, shows several significant percentages. One needs little knowledge of foundry operations to realize the significance of the following: per cent of good castings to net production, per cent of gate and sprue to net production, and per cent of foundry defectives to net production. The cost per pound, the pounds produced per production hour, and the pounds produced per man hour give effective standards with which to judge the efficiency of foundry operations. This information is especially significant when shown in the comparative form provided by Chart LVII (p. 635).

This form might have added to it an additional column showing the "normal or standard." Over a period of years it should be possible to establish standard ratios which can be used in judging the ratios shown by this report.

CHART LV

MONTHLY REPORT ON
DEPARTMENTAL POUND COSTS

__________Works Month of__________192__

Department		This Month	Last Month	Average Previous Years			
No.	Name			19	19	19	19
1	Gray iron foundry						
2	Forge shop						
3	Mall. iron foundry						
4	Tapping						
5	Annealing						
6	Iron body valve						
7	Pipe bending						
8	Wrench						
9	Tap and die						
10	Nipple						
11	Polishing						
12	Hardening						
13	Union forge						
14	Brass finishing						
15	Brass foundry						
17	Galvanizing						
22	Union						
33	Steel foundry						
37	Brass packing						
38	Iron packing						
39	Hardware packing						
77	Shipping						

CHART LVI

MONTHLY ANALYSIS
OF
FOUNDRY OPERATIONS AND COSTS

________________Foundry
________________Works   Month of________________192

Item	This Month	Last Month	To Date This Year	To Date Last Year	19	Memo.
Direct material						
Direct labor						
Indirect labor						
Other expenses						
Total cost						
Per cent direct material to total						
Per cent direct labor to total						
Per cent indirect labor to total						
Per cent other expenses to total						
Per cent indirect labor to direct labor						
Castings in process inv't'y 1st of month						
Gross melt this month						
Total input						
Castings in process inv. end of month						
Net production						
Good castings (transferred)						
Gate and sprue						
Foundry defectives						
Loss						
Per cent good to net production						
Per cent gate and sprue to net production						
Per cent f'dry def't'es to net production						
Per cent loss to net production						
Cost inventory in process 1st of month						
Total cost this month						
Total input cost						
Less inventory in process end of month						
Less credits for gate and sprue						
Less credits for foundry defectives						
Net cost of good castings						
Cost per pound						
Pounds produced per production hour						
Pounds produced per man						

CHART LVII

MONTHLY ANALYSIS OF FINISHING OPERATIONS AND COSTS

________________ Dept.

________________ Works Month of ________________ 192

Item	This Month	Last Month	To Date This Year	To Date Last Year	19	Memo.
Direct material (added)						
Direct labor						
Indirect labor						
Other expenses						
Total cost added in this dept.						
Per cent direct material to total						
Per cent direct labor to total						
Per cent indirect labor to total						
Per cent other expenses to total						
Per cent indirect labor to direct labor						
Inventories (pounds):						
Pounds in process first of month						
Pounds placed in process						
Total input						
Less pounds in process end of month:						
Foundry defectives						
Machine defectives						
Borings and turnings						
Net production (finished)						
Cost (amount):						
Cost inventory in process 1st of month						
Total cost this month						
Total input cost						
Less cost in't'y in process end of month						
Less credits for foundry defectives						
Less credits for machine defectives						
Less credits for borings and turnings						
Cost per pound						
Pounds produced per production hour						
Pounds produced per man						

Monthly Analysis of Finishing Operations and Costs

Chart LVII provides the information concerning a machine shop, or other departments performing finishing operations, which Chart LVI shows concerning the operations of a foundry. After the discussion given of Chart LVI, the purpose and value of the information shown on this report should be apparent. Like Chart LVII it may well have a column showing normal or standard percentages.

It is impossible to present reports showing analysis of the operations of various types of manufacturing firms. Charts LVI and LVII, however, indicate sufficiently well the nature of such reports that the student should have little difficulty in designing reports to fit specific cases.

Departmental Expense Analysis

The reports shown in Charts LVI and LVII provide a summary of departmental operations. For the use of the foremen and the superintendent of production, it is necessary to have more detailed statements which explain the summarized results shown by the condensed statements. For example, a detailed analysis of foundry expenses is shown by Chart LVIII. By a careful study of this report it is possible to ascertain the items of expense which need careful watching. If standard costs are used, this statement can be made to show the amount of the foundry expenses which is chargeable to product and the amount chargeable to profit and loss. The statement can also be made to show the expenses which are direct charges to the department for which it is made and those which are apportioned to this department.

C. Reports on Materials, Labor, and Expense.

Summary of Materials Used and Wasted

The report shown in Chart LIX (p. 638) provides useful information for the control of materials. It gives comparative information on inventories in addition to providing an analysis of the materials consumed. The comparison of the actual percentage of waste to the normal percentage is especially useful. This feature of this report is in harmony with the modern trend of

CHART LVIII

OPERATING EXPENSE ACCOUNTS

Co.

		PER LB	FOR MONTH OF		FOR MONTHS	
			CURRENT YEAR	PREVIOUS YEAR	CURRENT YEAR	PREVIOUS YEAR
	55 FOUNDRY EXPENSES					
	100 RAW MATERIALS USED					
	101 Pig Iron					
	102 Purchased Scrap					
	103 Machine Shop Scrap					
	110 REMELT					
	111 Poor Castings					
	112 Foundry Scrap					
	113 Drops, Sprues, etc.					
	120 SUPPLIES					
	121 Coal used in Cupola					
	122 Coke used in Cupola					
	123 Core Room Supplies					
	124 Cupola Supplies					
	125 Molding Supplies					
	126 Flask Supplies					
	127 Miscellaneous Supplies					
	130 LABOR					
	131 Molding—Main Floor					
	132 Molding—Side Floor					
	133 Machine Molding					
	134 Core Making					
	135 Melting					
	136 Cleaning					
	137 Laborers					
	138 Flask Makers					
	139 Foreman and Clerks					
	140 SUNDRY EXPENSES					
	141 Chemists					
	142 Maintenance & Repairs					
	142A Buildings—Labor					
	142B Buildings—Materials					
	142C Equipment—Labor					
	142D Equipment—Material					
	150 GENERAL EXPENSES					
	151 Insurance					
	152 Taxes					
	153 Depreciation					
	153A Depreciation—Buildings					
	153B Depreciation—Equip.					
	154 Foundry—Office Sal. & Exp.					
	155 Heat, Light and Power					
	156 Miscellaneous					
	157 Engineering					
	158 Stable and Garage Expense					
	160 UNDISTRIBUTED EXPENSE					
	161 Inward Freight & Express					
	TOTAL FOUNDRY EXPENSES					
	Lbs. Castings Produced					
	" " Sold Outside					
	" " Transferred to Shop					

CHART LIX

SUMMARY OF PRINCIPAL MATERIALS USED AND WASTED[1]

	Unit	Opening Inventory	Received	Total	Closing Inventory	Con-sumed	Ac-counted for in Pro-duction	Waste	Per Cent	Per Cent Allow-able Waste	Per Cent Excess Waste
Material No. 1..........	Lb.	9,068	4,012	13,080	9,985	3,095	2,960	135	4.3	3.0	1.3
Material No. 2..........	Lb.	15,620	10,015	25,635	14,200	11,435	10,682	753	6.6	5.5	1.1
Material No. 3..........	Lb.	8,550	2,000	10,550	6,504	4,046	3,896	150	3.7	4.0	— .3
Material No. 4..........	Lb.	86,800	....	86,800	62,000	24,800	20,550	3,250	13.1	5.0	8.1
Material No. 5..........	Yd.	65,460	24,040	89,500	68,080	21,420	20,200	1,220	5.7	6.0	— .3
Material No. 6..........	Yd.	27,000	9,500	36,500	24,020	12,480	11,730	750	6.0	6.0	....
Material No. 7..........	Yd.	42,770	....	42,770	30,150	12,620	11,500	1,120	8.9	6.0	2.9
Material No. 8..........	Ea.	2,516	1,000	3,516	2,120	1,396	1,385	11	.8	1.0	— .2
Material No. 9..........	Ea.	14,463	....	14,463	12,400	2,063	2,042	21	1.0	1.0	....
Material No. 10..........	Lb.	3,100	500	3,600	3,014	586	560	26	4.4	4.0	.4
Material No. 11..........	Lb.	8,466	2,000	10,466	7,515	2,951	2,840	111	3.8	4.0	— .2
Material No. 12..........	Gal.	5,500	2,500	8,000	4,000	4,000	3,520	480	12.0	10.0	2.0
Material No. 13..........	Gal.	2,060	500	2,560	1,750	810	731	79	9.7	10.0	— .3
Material No. 14..........	Gal.	1,000	....	1,000	800	200	185	15	7.5	8.0	— .5
Material No. 15..........	Ea.	21,000	10,000	31,000	19,500	11,500	10,800	700	6.1	5.0	1.1
Material No. 16..........	Ea.	26,490	8,500	34,990	24,670	10,320	9,890	430	3.2	3.0	— .2
Material No. 17..........	Ea.	5,655	....	5,655	4,620	1,035	1,000	35	3.4	2.0	1.4
Material No. 18..........	Lb.	10,500	....	10,500	6,340	4,160	4,085	75	1.8	2.0	— .2
Material No. 19..........	Lb.	6,228	....	6,228	4,040	2,188	2,080	108	5.0	5.0	....
Material No. 20..........	Lb	2,200	1,500	3,700	2,000	1,700	1,645	55	3.2	3.0	.2

[1] Charts LIX LX, LXI, and LXII are adapted from pamphlet published by Illinois Manufacturing Association, entitled, *Cost Information for Executives.*

judging statistical data in terms of pre-determined standards. Much value is obtained not only from the use of such standards as "measuring sticks" of accomplishment but also from the study necessary for their developments. This study will usually lead to the discovery of many leaks which would otherwise go undetected.

Departmental Labor Summary

The report shown in Chart LX provides a concise summary of the cost of labor. It also shows whether the amounts of time work and non-productive labor are being held to a proper minimum in the various departments. High hourly earnings of piece work laborers are evidence of efficiency which will result in decreased costs, while low earnings indicate the necessity for remedial measures. Where the non-productive labor is unusually high, this ordinarily indicates an undesirable condition, for supervision is one of the largest items of non-productive labor, and typically an increase in the cost of supervision in proportion to direct labor costs does not bring a compensating increase in the volume of production. Maintenance costs may be classified into major groups whenever its amount is of sufficient size to justify this. The non-productive labor shown on this report is a part of manufacturing expense, but is included here so that the departmental labor summary will be complete.

Summary of Manufacturing

Charts LXI and LXII (pp. 641, 642) show two methods of presenting information concerning manufacturing expenses. Both of these present a standard, in terms of the ratio of expenses to productive labor, for judging expenses. These two reports when taken together provide the management two methods of controlling expenses. The first report indicates clearly the expenses which show an undesirable tendency while the second report locates the responsibility for these undesirable results.

CHART LX

DEPARTMENTAL LABOR SUMMARY

	Productive Labor											Non-Prod. Labor			Total Labor				
	Piece Work			Time Work			Total					Time Work			Piece Work and Time Work				
	Hrs.	Amt.	Avr. Rate	Hrs.	Amt.	Avr. Rate	Hrs.	Amt.	Avr. Rate	% P. W.	% T. W.	Hrs.	Amt.	Avr. Rate	Hrs.	Amt.	Avr. Rate	% Prod.	% Non-Prod.
Dept. A..........	1,050	323 93	.309	710	219 76	.31	1,760	543 69	.309	60.2	39.8	100	54 21	.542	1,860	597 90	.322	90.9	9.1
Dept. B..........	1,584	716 10	.452	543	210 40	.387	2,127	926 50	.435	77.3	22.7	120	57 00	.475	2,247	983 50	.438	94.2	5.8
Dept. C..........	1,738	721 81	.415	710	230 25	.324	2,448	952 06	.39	75.8	24.2	165	78 40	.475	2,613	1,030 46	.398	92.4	7.6
Dept. D..........	1,865	730 63	.392	414	110 40	.267	2,279	841 03	.369	86.9	13.1	150	70 50	.47	2,429	911 53	.372	92.3	7.7
Dept. E..........	1,389	543 65	.391	834	296 95	.356	2,223	840 60	.378	64.7	35.3	104	52 50	.505	2,327	893 10	.384	94.1	5.9
Productive Depts.	7,626	3,036 12	.398	3,211	1,067 76	.333	10,837	4,103 88	.379	74.0	26.0	639	312 61	.489	11,476	4,416 49	.385	92.9	7.1
Maintenance Depts..........												2,460	1,365 60	.555	2,460	1,365 60	.555		100.0
Total.......	7,626	3,036 12	.398	3,211	1,067 76	.333	10,837	4,103 88	.379	74.0	26.0	3,099	1,678 21	.541	13,936	5,782 09	.415	71.0	29.0

CHART LXI

PROGRESSIVE SUMMARY OF MANUFACTURING OVERHEAD EXPENSE
SHOWING PERCENTAGE TO PRODUCTIVE LABOR

(Cents Omitted)

	January		February		Period		March		Period	
	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent
Productive Labor	15,780		14,972		30,752		14,648		45,400	
Supervision	2,770	17.6	2,725	18.2	5,495	17.9	2,420	16.5	7,915	17.4
Power	3,517	22.3	3,021	20.2	6,538	21.3	2,782	19.0	9,320	20.5
Repairs	1,876	11.9	1,966	13.1	3,842	12.5	1,644	11.2	5,486	12.1
Supplies	1,242	7.9	1,065	7.1	2,307	7.5	987	6.7	3,294	7.3
Sundries	2,889	18.3	2,748	18.4	5,637	18.3	2,346	16.0	7,983	17.6
Taxes	1,040	6.6	1,040	6.9	2,080	6.8	1,040	7.1	3,120	6.9
Insurance	890	5.6	890	5.9	1,780	5.8	890	6.1	2.670	5.9
Depreciation	3,545	22.5	3,545	23.7	7,090	23.1	3,545	24.2	10,635	23.4
Total	17,769	112.7	17,000	113.5	34,769	113.1	15,654	106.9	50,423	111.1

CHART LXII

DEPARTMENTAL MANUFACTURING OVERHEAD EXPENSE SHOWING PERCENTAGE TO PRODUCTIVE LABOR

(Cents Omitted)

	Department A		Department B		Department C		Department D		Department E		Total	
	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent
Prod. Labor	2,156		3,740		3,881		3,265		2,738		15,780	
Supervision	540	25.0	522	14.0	565	14.6	570	17.5	573	20.9	2,770	17.6
Power	624	28.9	763	20.4	857	22.1	775	23.7	498	18.2	3,517	22.3
Repairs	375	17.4	297	7.9	460	11.9	226	6.9	518	18.9	1,876	11.9
Supplies	310	14.4	215	5.7	247	6.4	244	7.5	226	8.3	1,242	7.9
Sundries	434	20.1	635	17.0	722	18.6	520	15.9	578	21.1	2,889	18.3
Taxes	156	7.2	229	6.1	260	6.7	187	5.7	208	7.6	1,040	6.6
Insurance	133	6.2	196	5.2	222	5.7	160	4.9	179	6.5	890	5.6
Depreciation	530	24.5	790	21.1	757	19.5	875	26.8	593	21.7	3,545	22.5
Total	3,102	143.9	3,647	97.4	4,090	105.4	3,557	108.9	3,373	122.5	17,769	112.7

This double check is especially valuable in the control of variable expenses which can be definitely affected by executive action. When standard expense factors have been established these reports can be amended to show a comparison between the actual and standard amounts.

QUESTIONS FOR CLASS DISCUSSION

1. Why do the organizations of manufacturing firms differ so widely in form?
2. To whom would the heads of the following departments report if they do not report to the production: (1) maintenance, (2) stores, (3) receiving, (4) inspection, (5) shipping.
3. Explain and illustrate the relation of the foremen to the planning department.
4. Were reports developed earlier or later in the production department than in the other operating departments.
5. "The volume of production should not show an upward trend while the volume of orders received shows a downward trend." Can you give illustrations where this statement is not true?
6. Explain the possible reasons for changes in the quantity of unfilled orders. Explain the significance of the change in each case.
7. In chapter viii the requisites of executive reports are stated. To what extent do the reports given in this chapter fulfil these requisites?
8. Chart LX shows *inter alia* the following: (*a*) per cent of indirect labor to direct labor; (*b*) per cent of good to net production; (*c*) per cent of loss to net production; what is the significance of each of these items of information?
9. "All interest and discounts are straight profit and loss items. Interest on bank loans are but payments on account of insufficient capital, and these payments are in the place of what otherwise would be stock dividends." Do you agree?
10. Go through the reports given in this chapter with the purpose of deciding the use which may be made of each item of information shown on these reports. In case of doubt make a memorandum of the doubtful item and inquire in class discussion concerning it.

EXERCISE NO. 46

The Machine Supply Company manufactures a product that is made from raw material in the foundry of the company, and completed (ready for sale) in the finishing-room.

The factory superintendent receives a report from the finished-stock-room that 195 units of the product are on hand on January 21 as against a finished stock quota calling for an average of 430 units on hand. The superintendent issues works order No. V 59 calling for the immediate production of 300 units. This works order calls for operations on the order to begin in the foundry on January 22, and for the finished stock to be delivered into the store warehouse on January 26.

The foundry foreman on receipt of the works order makes out a requisition on the raw material stores-keeper for 6 tons of metal. This metal is ready in the foundry in the morning of January 22, and the requisition is forwarded by the stores-keeper to the bookkeeper priced at $3.12 per cwt. In addition to this metal the foundry uses $438.15 of fuel and foundry supplies on works order V 59. The works order leaves the foundry in units as completed during the day of January 24. The works order requires the labor of twenty-one men on each of the three days of January 22, 23, and 24 at an average cost per man per day of $3.70. The non-productive labor in the foundry during these three days amounted to $116.48 and the indirect expenses amounted to $72.00. The tonnage of works order V 59 amounted to 58 per cent of the entire tonnage in process in the foundry during the three days, and non-productive labor and overhead expenses are distributed to jobs on the basis of tonnage.

On January 24, 25, and 26 the foreman of the finishing-room makes requisitions on the storekeeper for supplies needed in finishing works order V 59 amounting in total to $48.96. During these days labor is employed on works order V 59 at piece rates amounting in total to $235.74. The total direct labor cost of the finishing-room for the three days was $769.42. The supervision cost and non-productive labor of the finishing-room for the three days amounted to $114.95 and this overhead cost is distributed to jobs on the basis of direct labor cost.

Required

1. Make the journal entries necessary to set up: (*a*) the foundry production cost on works order V59; (*b*) the finished stock cost on works order V59. In each case make the appropriate explanations for the entries.

2. Prepare a memorandum for submission to the president of the Machine Supply Company stating any objections which you have to his present method of production control and explaining such changes as you think should be made.

REFERENCES FOR FURTHER STUDY

1. Sheldon, *Philosophy of Management*, chap. iv.
2. Jordan and Harris, *Cost Accounting*, chaps. xxi and xxiii.
3. Cartmell, *Stores and Materials Control*, chaps. xvii-xix.

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